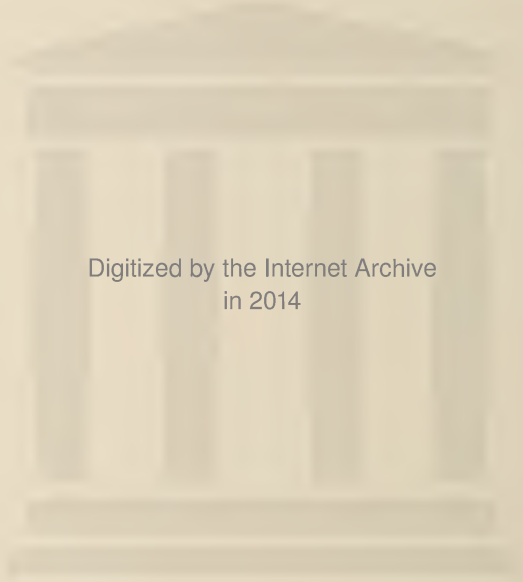
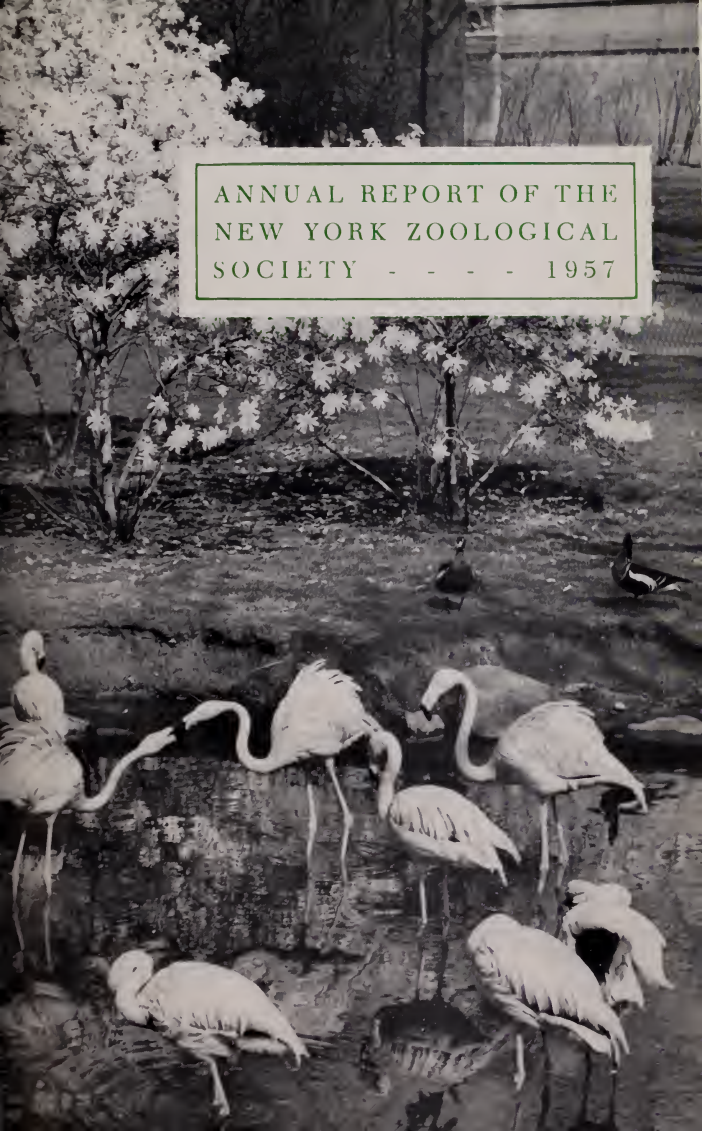


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ANNUAL REPORT OF THE NEW YORK ZOOLOGICAL SOCIETY - - - - 1957

THIS IS THE SIXTY-SECOND ANNUAL REPORT OF THE NEW YORK ZOOLOGICAL SOCIETY - - - - 1957

THE SOCIETY'S OFFICES
30 EAST 40TH STREET, NEW YORK 16

THE ZOOLOGICAL PARK
BRONX PARK, NEW YORK 60

THE AQUARIUM
CONEY ISLAND, BROOKLYN 24

REPORT OF THE PRESIDENT

FAIRFIELD OSBORN, *President*

THE OUTSTANDING EVENT of the year occurred on June 6th, when the First Stage of the new Aquarium was opened to the public. This occasion marked the culmination of a number of years of planning by the City and our Society. When the old Aquarium at Battery Park was closed because of the construction of the Brooklyn-Battery Tunnel, it was evident that a new site had to be found. Upon the recommendation of Commissioner Robert Moses, the Board of Estimate of the City appropriated $770,100 for the purchase of land on the oceanfront at Coney Island in the Borough of Brooklyn. Adjacent to the purchased land, the City already held other land, which, after the removal of an existing shops building—and the construction of a new one at another location—was designated for use by the new Aquarium. Through these actions by the City, a total of 10 acres of land became available for Aquarium purposes. Thereupon, architectural designs were prepared for a great modern institution which would do adequate justice to the living creatures of the rivers, lakes and oceans of the world. Pending the time when funds, both private and public, would be available to complete the entire plan, it was concluded to "get going" and the First Stage was constructed. The cost of this alone approximated $1,500,000, which was shared equally by the City and the Society.

The above developments represent a fine example of cooperative work between a City government and an independent institution such as our own. The objective could not have been accomplished without the conviction held by Commissioner Moses and shared by the Mayor and other City officials, that an Aquarium was an essential part of the recreational and educational assets of our City. A lot of work has been involved to get the plans completed and the Aquarium constructed and opened. Our organization has received the unfailing aid of Commissioner Moses and his staff in this project.

As for the Society's part, the contributions received from Trustees, Members and other friends of our Society have been invaluable. They have provided the bulk of the Society's share of the construction costs. Special appreciation goes to Laurance S. Rockefeller, Chairman of our Executive Committee, who through his belief in this project and his generous contributions has done so much towards bringing the Aquarium into existence.

Getting an aquarium into successful operation is about as compli-

cated and experimental as trying out an atomic submarine. Every new aquarium, even though located in more favorable climates such as Florida or California, has to go through a series of operating headaches due principally to the complexities of supply, filtration and temperature controls of the water systems, both salt and fresh. Our Aquarium staff, under Director Coates, has done a fine job in surmounting a series of operating difficulties.

The new Aquarium is the first operation under the management of any of the so-called quasi-public institutions in New York—such as museums, botanical gardens and zoological parks—to be on a pay-as-you-go basis. At the year-end it seems probable that the operation will prove successful from a financial point of view, although further experience will be needed to assure that revenues from admissions and from other facilities will be adequate to cover operating costs. The paid attendance from June 6 to December 31 totalled 278,349 visitors. In addition, over the same period the Aquarium was visited by 51,344 school children in organized classes which are admitted free of charge.

The next goal is the further development of the Aquarium. Architectural plans are now being prepared for a new large exhibition hall, a part of the over-all plan, to adjoin the present unit. Substantial funds will be required by the Society in order to enable it to meet its share of the cost of this greatly needed addition to the present building. In the meanwhile, several new outdoor attractions will be added for the 1958 season, including three additional exhibit pools and new picnic facilities.

Zoological Park

At the Zoological Park, major improvements are under way. Special mention should be made here of the complete modernization of the interior of the old Primate House. This is the large building on the east side of the main court in the northern portion of the Park. The building itself has been put into good condition, having been re-roofed and re-floored at a cost of $91,000 of City funds. The cost of the modernization of the interior of the building comes to the substantial sum of $325,000, which is being financed through the Society's Park Improvement Fund, derived from net revenues of Facilities operations. This building will be ready for public opening during the coming year and, in due time, will contain a worldwide collection of Drills, Mandrills and other Baboons, Macaques, Langurs, Lemurs and other remarkable primates. In this building the Zoo will have a fine supplement to the modern Great Apes House that contains our outstanding collection of Gorillas, Orang-utans, Chimpanzees and Gibbons. Altogether, our Zoo will soon have preeminent facilities for the exhibition of this fascinating group of animals.

Other Activities

While these major physical improvements are going forward, it is good to be able to report that the year has been highly productive in the field of wildlife protection as well as in scientific research. As the departmental reports that follow deal at length with operations of the Zoological Park, the Aquarium, the Tropical Research Department and with scientific and educational activities, it is appropriate here to make special reference to activities in wildlife protection and refer at least briefly to work in research.

Wildlife Protection

The Pesticide Problem.—The status of wildlife in the United States has, generally speaking, substantially improved in recent decades. However, the year 1957 highlighted a new threat to many forms of animal life. The cause of this threat is the extremely rapid increase in the use of pesticides, namely chemical agents of a poisonous nature such as DDT and Dieldrin, designed to control insect pests. Large-scale airplane spraying in May, 1957, against the gypsy moth in three northeastern states—New York, New Jersey and Pennsylvania—dramatically focused public concern. But the spraying in May was only another step among many since World War II evidencing the vast increase in spreading chemicals on the landscape. The volume and variety of poisonous chemicals used to aid American agriculture continues to grow, and research by chemical manufacturers constantly provides new products in the fight against crop and forest losses.

Scientists and others have long been aware of the need to protect essential crops from destruction and of the hazards to soils, plants, animal life and human health. Investigations under way for the last decade, both here and abroad, have sought to establish "safe" dosages of various chemicals under varying conditions, and a considerable body of government regulation is already in effect.

Nevertheless, both field and laboratory studies on short range and long range effects of chemicals in the landscape on the whole web of life still lag dangerously behind the application of chemicals on the land, and the rapid increase in rate of use clearly indicates that we need to acquire much more knowledge—as quickly as possible—to guide pesticide use.

Consequently, with the Conservation Foundation, we are currently initiating studies of some of the problems posed by the increasing use of pesticides. We are interested in ascertaining the facts about the effect of such chemicals on the total biotic environment, on vege-

tation and soils, on dependent and interdependent insect and animal populations, and on wildlife.

In July, Dr. John L. George prepared a review of present knowledge of pesticide effects, especially on wildlife populations. This report, entitled "The Pesticide Problem," represents an initial move in our aim to sponsor completely objective studies, to play a constructive part in stimulating research by government agencies, universities and land owners, and to provide unbiased reviews of specific pesticide findings for the general public.

African Wildlife.—As in any other of our endeavors, the important need is to hit at "key problems." Although there are many threats to different forms of wildlife throughout the world, none is more evident or more critical than the parlous situation of the fauna of Africa. In order to gain adequate information on which to base future action George Treichel was commissioned to make an extended survey of wildlife conditions in Africa including a compendium of existing sanctuaries such as presently-established national parks and game preserves. This two-year assignment, involving more than 18,000 miles of travel, was concluded at the year-end. His analysis of the situation together with his recommendations, resulting in large part from his many conferences with African game officials, will in due course be published in book form. Pending the completion of this publication, we hope to activate related programs which will help to preserve the superb fauna of that continent.

Alaskan Wildlife Sanctuary.—The year has also witnessed the successful culmination of several years' work aimed at the better protection of wildlife in Alaska. It will be recalled that in 1953 we, together with the Conservation Foundation, published WILDLIFE IN ALASKA representing the survey made for our two organizations by A. Starker Leopold and F. Fraser Darling. Subsequently we requested Olaus J. Murie to undertake the specific task of studying the desirability of establishing a wildlife reserve in the Brooks Range in northern Alaska. His expedition returned with a firm recommendation which, with the warm endorsement of interested groups in Alaska, has been approved by the Director of the U. S. Fish and Wildlife Service and the Secretary of the Interior and is now awaiting Congressional action providing for a permanent reserve to be known as "The Arctic Wildlife Range."

Several years ago we initiated a survey of the status of the Bighorn Sheep in the United States, the results of which are now being published. This year we arranged for a survey of the status of the Bighorn Sheep as well as the Pronghorn Antelope in northern Mexico. This project is being carried out for us by Professor Bernardo Villa of the

Instituto Mexicano de Recursos Renovables. His findings will be published in due course.

Scientific Research

The amount of work carried out by various members of our scientific staff is of such scope and variety that it is neither feasible nor desirable to summarize it in this portion of the Annual Report. However, in several of the departmental reports that follow there will be found descriptions of current scientific activities.

The principal event in this field of the Society's interests was the establishment of the Department of Marine Biochemistry and Ecology, which will be under the direction of Dr. Ross F. Nigrelli of our Aquarium staff. This new department is the first of its kind that has been established in our country. Its work will be centered at the laboratory at the new Aquarium. Through the establishment of this department new horizons are being opened for the extension of knowledge concerning marine biology and biochemistry.

The value of work by our scientific staff is reflected by the steadily increasing amounts of grants being received from outside sources, namely, governmental agencies and foundations, such grants during the year having totalled $74,540.

Finances

The continuing trends of increasing costs are influencing the Society's financial position. It has been possible for a number of years for the Society to carry out its operations without a deficit. However, the present year marks a turning point in this respect and the Society's income from its present capital is no longer capable of meeting current operating charges. It is inevitable that deficits will increase in the future unless the Society's general funds can be substantially increased by current contributions or, "for the long pull," through legacies which will become available as time goes on. The only alternative, and a highly undesirable one, would be that of forcing economies which would seriously impair the basic work and purposes to which our Society is dedicated.

Gifts and Legacies

Gifts and legacies received during the year totalled $63,755.48. Contributions to the Aquarium development fund totalled $33,577.61.

Membership

A distinctively encouraging development of the year has been the steadily increasing financial support received from our membership.

The tangible evidence of this is the growth in the amount of dues annually paid in by members, which for 1957 aggregated $51,586.50, the largest amount in the Society's history.

Board of Trustees

Board.—The death of Edwin S. Webster, Jr., in November, deprived our Board of an exceptionally loyal and helpful member whose presence at our meetings and whose readiness to help the Society at all times will be deeply missed.

It is a source of great pleasure to welcome William R. Coe to membership on the Board.

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Our entire organization deserves credit for a year of fine accomplishment. Effective results have been gained in wildlife protection, in scientific research and in the extension of educational activities. The skills and constant work needed in the care of 2,500 animals of more than 1,000 kinds at the Zoological Park, and the special challenge of establishing the new collections of marine life at the Aquarium, represent competence of a high order. The essential purpose of these institutions is, of course, to serve the public, whose interest is unflagging. In recent years, with everybody "going places" in automobiles, we have not been able fully to take care of the week-end crowds wishing to enter the Zoo, because of insufficient parking facilities. By next year, however, these facilities will be extended to handle 500 additional cars.

The public's interest is unquenchable, evidenced by the fact that during the year the two institutions were visited by 2,495,227 people. It should be recalled that it is a seven-day-a-week operation at both the Zoo and the Aquarium and this, as the phrase runs, "takes some doing."

THE ZOOLOGICAL PARK AND THE AQUARIUM

JOHN TEE-VAN, *General Director*

THE RISE in the Zoological Park's collection to well over 1,000 species and subspecies, and the rebirth of the New York Aquarium in its new home beside the sea, are both events that make 1957 memorable. That the Zoological Park was able to exhibit 1,044 forms of mammals, birds and reptiles speaks well for the adroit housekeeping of the curatorial staff, especially since the old Primate House and a sizeable section of the Bear Dens were still out of commission. Not since 1941 had we exceeded 1,000; the figure in that year was 1,014.

A venture as complex as the building, outfitting and operating of an Aquarium requires at the very least a year's shakedown, a full twelve months' experience, before its future can be charted with confidence. That first year will not be up until early this coming June, but the first seven months of operation—until the end of 1957—are certainly encouraging. Problems there are, some of them major, yet they do not hide the fact that visitors are pouring through the front door and enjoying the exhibits, and thousands of school children are using the Aquarium as an adjunct to their classrooms. Indeed, our facilities seem likely to be swamped by eager school groups, and much thought is being given to temporary or even permanent out-of-doors exhibits that will help to scatter the crowds this coming year.

Zoo people, being human, take pride in bringing new animals into their collections. It is of course exceptional nowadays to exhibit an animal that no other zoo has ever shown, but it is almost equally good to be able to add an animal new to one's own collection. This past year the Mammal Department showed Elephant Seals, a Gerenuk and a Lesser Kudu for the first time with us. The Bird Department as usual presented a notable list of birds new to the collection, among which Puffins and Adelie Penguins are especially noteworthy. The Reptile Department made several additions to the Park's records, the most outstanding being the deadly Taipan snake of Australia and the interesting Moloch Lizards.

Although a female Okapi, "Muyoni," came to us in the fall of 1956, she was so heavily infested by parasites that it was not until May of last year that she could be given the companionship of our male, "Bilota." The two animals are perfectly friendly and companionable,

but there is no present evidence that we will be able to exhibit a baby Okapi in the near future.

The most serious loss of the year was that of our two Duck-billed Platypuses after more than ten years on exhibition. At the year's end negotiations were being carried on with the Australian Government and with David Fleay, the Australian "Platypus Man," that we hope will bring us three more Duck-bills in the spring of 1958.

A new roof and new floors having been installed in the old Primate House by the City of New York, we have now begun complete remodeling of the interior and the work was pushed through the mid-winter months with the determination to reopen the building—under the new name of Monkey House—in the late spring of 1958, if at all possible.

Combining of the Pony and Animal Rides on one track has given us a more efficient operation, and coincidentally permitted a much-needed expansion of the Children's Zoo.

Application of an attractive and well-thought-out color scheme to the interiors and doors of the animal buildings has been going on for some years under the direction of Miss Teresa Kilham, and is now virtually complete. Enlargement of the Crotona Parking Field to make room for an additional 500 cars, long planned but requiring the shifting of the Elk herd to a new location, is now definitely scheduled for 1958. The estimated cost of the extension and modernization of the Crotona field is $302,700; one-half is to be paid by the City of New York and the other by the Society out of its Park Improvement Account. The source of funds for this Account is the Facilities operation—revenue from parking fields, restaurants and the like.

During the year Dr. John L. George was appointed Associate Curator of Mammals. He is a graduate of the University of Michigan where he received his degree.

In its second year in 1957, the Career and Salary Plan of the City of New York continues to work well, as the inevitable adjustments are gradually made. We are still handicapped by a shortage of personnel in some departments, and reclassification of some positions is not complete, but in general the plan seems to be a good one.

In October the General Director, Director Coates of the Aquarium, and Mr. Justin Heinlein, a representative of the Aquarium's architects, made a tour of aquariums and private and public animal exhibits in Florida.

Attendance at the Zoological Park continued its slow rise; we hope for more dramatic increases in attendance when parking facilities are enlarged. It has been obvious for several years that more and more

visitors are coming by automobile, and our present capacity of 1,640 cars is inadequate on even moderately large days in spring, summer and early fall. An increase of capacity by 30 percent. will surely be reflected in attendance figures.

SUMMARY OF ATTENDANCE

Zoological Park

Month	1956	1957
January	49,120	35,924
February	108,822	70,879
March	83,586	171,284
April	242,913	248,037
May	281,387	275,746
June	241,544	274,127
July	338,369	307,499
August	273,742	293,034
September	219,946	213,669
October	168,884	106,905
November	95,287	105,104
December	39,756	63,326
	2,143,356	2,165,534
Total visitors from November 9, 1899, to December 31, 1957		125,503,419

DEPARTMENT OF MAMMALS

John L. George, *Associate Curator* (since September 13)
Grace Davall, *Assistant Curator*
Joseph Ruf, *Head Keeper*
Lee S. Crandall, *General Curator Emeritus*

During the greater part of 1957 the Mammal Department was managed by Dr. Leonard J. Goss, the Assistant Director, with the very able assistance of Miss Davall. Dr. George assumed his duties on Friday, September 13.

There were 156 individuals added to the animal collection during 1957. Most of these (90) were born in the Park; the remainder (66) were purchases, donations or exchanges.

Twenty-eight species gave birth to one or more young that survived. The first of these was a Nyala born on January 4 and the last was a litter of nine Dingos born on December 20. Notable births were the two Tiger cubs born on May 3 and the Yak on September 2. The Tigers were the 28th and 29th cubs and ninth litter born to our prolific Tigress, Dacca, and her mate, Rajpur, who were litter mates born in the Park in 1944. This certainly stands very high among records for Tiger productivity in captivity. The pair is together again and we hope for a tenth litter next spring. The young Yak female is our first born in the Park since 1942, and now she is a large, weaned calf that is very active in the corral with her parents.

Several developments in 1957 indicate that 1958 will be an interesting year. It would appear that both our young male Black-faced Chimpanzee, who doubled his weight during the year to reach 100 pounds, and Mambo, our Lowland Gorilla, who increased his weight from 200 to 300 pounds, are in a pre-pubertal growth spurt. It is interesting to note that Makoko, our former male Gorilla, went through much the same growth spurt in his eighth year of life. Also, we now have a pair of Okapis and they are living together amicably. Young pairs of Pigmy and Nile Hippopotamuses are together, as are our young Masai Giraffes.

Notable species acquisitions, in order of arrival, were: Reindeer, Yellow-thighed Galago, Greater Kudu, Anoa, Elephant Seals, Malayan Tree Shrews, Lesser Kudu, Gerenuk and Aardvark. The Reindeer (*Rangifer tarandus*), our first pair in twelve years, delighted us by having a fawn on May 16. Prompt veterinary attention saved the youngster from succumbing to a severe leg infection and the

family was an especially appealing exhibit during the Christmas season. The Yellow-thighed Galagos (*Galago senegalensis braccatus*), a gift of the late Lt. Col. W. J. Morden, were new to us, whereas the Greater Kudu filled a species gap due to the loss of our last specimen a year ago. The Anoas, a young pair, also filled a temporary species gap. It is disheartening to report that vandals attacked this pair during a night in December and the female died several days later.

The Elephant Seals are the first in our collection. The female already weighs an estimated 700 pounds, but the young male is only half her size and temporarily is being held in the Fur Seal Pool until he gains enough weight to rejoin the female and compete with the active young bull Sea Lions in the big pool.

The Malayan Tree Shrews (*Tupaia glis*), the first we have exhibited, are interesting biologically in that they are sometimes considered primitive primates rather than insectivores. They are most difficult to keep in captivity and we lost our three specimens during the year.

The Lesser Kudu and the Gerenuk arrived in October from Somaliland. Both are "firsts" in the collection and are two of the loveliest antelopes we have had. The Gerenuk is especially arresting in its habit of standing erect on its hind legs. This ability, together with its long neck, enables it to browse high brush in its native desert bush country.

During the year 171 specimens died, were sold or exchanged, or were missing. The disappearance of Penelope, our female Platypus, on July 31 caused an extended night-time search of all the waterways in the Park, but no trace of her was found. Numerous and sometimes fantastic descriptions of strange animals sighted in the lower New York area were received at the Zoo, but Penelope was not among them. On September 18, Cecil, our male Platypus, died. He had been losing weight and weighed only 2.48 pounds at death, compared to a peak weight of 4.07 pounds in October, 1949, and 3.41 in May, 1957. These Platypuses established respective record longevities of 11 years 3½ months and 11 years 5 months in continuous captivity, in Australia and the Zoological Park. The estimated age of Penelope was 11 years 7 months when she disappeared; that of Cecil was approximately 12 years and 9 months.

Our last Callimico died during the year. One of these specimens was sent to Dr. Osman Hill, then on the point of publishing Volume III, Families Hapalidae and Callimiconidae, of his review of the primates of the world. Although he had created a separate family for Callimico, our specimen convinced him that it belonged with the other marmosets in the Family Hapalidae.

Other serious losses were our Marco Polo Sheep and Markhor on Sheep Hill. These animals were parasitized by lungworm, the first diagnosis of this parasite in the Park, although difficulties in keeping sheep on this tract were noted in the earliest reports of the Society.

Sales of surplus animals yielded $5,050 in revenue.

Talks to school and conservation groups and radio interviews were given, and the Department had its usual heavy load of inquiries by mail and phone. On some days our phone is busy 25% of the time answering questions about animals. Customarily we handle these requests free of charge if the request is non-commercial in nature. Members of the Department also contributed to Animal Kingdom and Zoolog and the Associate Curator prepared an evaluation of current animal and plant control programs, entitled "The Pesticide Problem."

Informal conferences with visiting professional and non-professional biologists covered many topics, from parasites of seals to the status of African wild life. These discussions revealed the range of the Society's interests, from specific biological relations and threatened species populations in local areas, to concern for the wild life and wilderness resources over large areas, even sub-continents.

Mammal exhibits make up the major part of the Zoological Park; each year a great deal of effort goes into the maintenance of old and construction of new exhibits. This year the Aoudads enjoyed a new cinderblock house in the African Plains Extension. The house will also serve as a capturing area when necessary. A new pool was built for an outdoor exhibit of the Giant Otter in Burrowing Rodents Row. The den is well insulated in the hopes of wintering the otter in this exhibit. For the first time in seventeen years, the Lion House does not shelter the Aquarium. The west wall is now free, which gives us an area for expansion of exhibits; tentative plans call for the establishment of a Nursery in the alcove, where we can hand rear young animals. Remodeling of the old Primate House interior has begun and some time in mid-1958 we hope to re-open this building as a new Monkey House to give us a much-needed supplement to the Great Apes House. Not since 1950 have we had a central location to exhibit our smaller primates.

Census of Mammals
December 31, 1957

Orders		*Species*	*Specimens*
Marsupialia	Kangaroos, Phalangers, Opossums, etc.	7	12
Insectivora	Moles, Shrews, Hedgehogs, etc.	2	2
Primates	Apes, Monkeys, Lemurs, Marmosets, etc.	44	71
Edentata	Armadillos, Sloths, Anteaters	2	2
Tubulidentata	Aardvarks	1	1
Rodentia	Squirrels, Beavers, Mice, Porcupines, etc.	12	33
Carnivora	Bears, Raccoons, Cats, Dogs, Otters, etc.	31	80
Pinnipedia	Seals, Sea Lions, Walruses	5	7
Proboscidea	Elephants	3	5
Perissodactyla	Horses, Tapirs, Rhinoceroses	8	11
Artiodactyla	Cattle, Sheep, Antelopes, Camels, Giraffes, Deer, Swine, Hippopotamuses	53	290
	Totals	168	514

Summary: Orders, 11; Species, 168; Specimens, 514.

DEPARTMENT OF BIRDS

William G. Conway, *Associate Curator*
Grace Davall, *Assistant Curator*
George Scott, *Head Keeper* (retired November 19)
Joseph Bell, *Head Keeper* (since November 20)
Lee S. Crandall, *General Curator Emeritus*

Nineteen fifty-seven has been an extremely active year for the Bird Department. Despite major changes in personnel, we completed the year with 636 species and subspecies and 1,505 specimens. This is the greatest number of species we have exhibited in fifteen years. Specialized exhibition facilities are the prime requisite for a large representative collection of birds. Our five major bird buildings, with their outside displays, provide quarters for the finest collection in the Western Hemisphere. However, the problems imposed by the collection reveal the limitations of our housing. Modern advances in display beauty and technique combine to make us feel the inadequacies of our four largest buildings, each of which has seen more than half a century of use. Improved facilities for psittacines and aquatic birds are especially needed.

With the help of Staff Artist Lloyd Sandford, the Associate Curator prepared a series of paintings to aid in visualizing future improvements in our buildings. Mr. Conway also prepared a detailed plan for remodeling the Ostrich House, incorporating some entirely new display features.

A good number of improvements were accomplished during the year, including a new lighting system and some new cages for winter housing of birds of prey and the stork collection; a new bottom for Heart Lake; an escape guard for the fence at Bird Rock (which proved highly successful); a compressed air system for keeping Penguin House exhibition windows free of condensation; new heating for the Ostrich House, and grading and planting of the Wildfowl Pond. Two refrigerators were purchased, providing cold food storage in the Ostrich and Aquatic Bird Houses for the first time. These facilities are an important aid in the economic operation of these buildings.

A major effort was made to improve the general level of display appearance with decorative material. Several short excursions were made to secure such diverse items as bamboo stems, birch logs and

white cedar stumps. Wherever possible, necessary cage facilities such as perches and feeding stands have been chosen with an eye toward attractiveness as well as utility.

The careful evaluation of our foods and feeding methods begun last year has continued and several revisions were effected. The primary purpose is to keep our birds better, but some of the changes have had side effects of economy or operational efficiency. A program of laboratory checks on all incoming birds has been instituted with the help of Drs. Goss and Gandal.

A number of departmental projects of general nature were completed or started during the year. One of the most interesting is an inquiry into the problem of color loss in captive birds. Many species, especially those which have brilliant yellow, orange or red carotenoid pigments in their plumage, fade when maintained on captivity diets. A long-term series of experiments is being carried out, which we hope will eventually result in really roseate Roseate Flamingos and truly scarlet Scarlet Tanagers. Waterfowl eggs were purchased from a collector in Iceland in an attempt to add several species of northern sea ducks to the collection. Eiders, Golden-eyes and Scoters have not been successfully exhibited in many American collections. Our experiments in artificial incubation were gratifying, but rearing the delicate ducklings proved difficult. Despite setbacks, we had the satisfaction of adding some fine birds to the collection, including several forms not previously exhibited here. In the early spring, ducks presented still other problems to us. The rupture of an immense oil reservoir at the Raritan Estuary in New Jersey resulted in many badly oil-coated ducks being brought to us for treatment. After some trial and error, we worked out a program of teaching the birds to eat captivity rations, and then gentle, warm baths in household detergents gradually removed the oil. Several specimens thus treated were added to the collection. Another experimental project which has aroused great interest was Puffin acclimatization. To the best of our knowledge, no zoological park now has a satisfactory exhibit of the amazing "sea parrots." Following a visit to the Park, Mr. Stuart Peters of the Newfoundland Mines and Resources Department collected several nestlings and shipped them to us by air. After some initial loss and considerable effort, we feel we have learned how to maintain Puffins satisfactorily. We are now gathering data to fill in some of the gaps in knowledge of Puffin development. It is hoped that this experience will eventually result in a special "Puffinry" being built. Mr. Conway worked with Staff Photographer Sam Dunton to obtain a series of stills and movies of the little-known swimming behavior of Puffins. Still another project which promises much is the start of a research studio for bird pho-

tography. A second-floor room in the Large Bird House was remodeled by the Construction and Maintenance Department to provide special facilities for high-speed motion picture photography of birds in flight. Photographic Consultant Henry M. Lester is working with Mr. Dunton and Mr. Conway on this program, and Mr. Conway has written a preliminary shooting script for a first movie to be entitled "Secrets of Flight."

An important highlight of the year was the first successful rearing of Whooping Cranes in captivity, under the supervision of former Head Keeper Scott. In early May Mr. Scott was sent to Audubon Park, New Orleans, by the Zoological Society and the Fish and Wildlife Service to oversee the care of the cranes. Conditions at Audubon Park for rearing these extremely rare birds were far from perfect, as the failures of the previous two years attested, and the final success is a tribute to Mr. Scott's ability and to the interested intervention of the New York Zoological Society. Mr. Crandall and Dr. Goss, as well as Mr. Conway, acted in an advisory capacity at various stages in the project. Mr. Conway spent several days in New Orleans to help resolve some of the problems and make a brief chronicle of the chicks' behavior at a time in their development for which practically no data are available.

Four hundred and forty-eight specimens were received during 1957 of which 262 were purchases. In exchanges we disposed of 38 birds and received 41. The rest of the year's acquisitions were largely donations of native species, often young or injured specimens. So many highly unusual species were added to the collection that only a few may be mentioned here. The waterfowl and pheasant collections were greatly improved. Black-necked Swans, Magellan Geese and Ashy-headed Geese of South American origin were obtained. As might be expected, some of these waterfowl move north in winter, in contrast to our native waterbirds which head south. Two species of tragopans and a pair of rare Sumatran Bronze-tailed Peacock Pheasants helped bring our pheasant collection up to standard. The few Bronze-tails in European collections were lost during the war and the species has never bred in America. Our birds are among the first to be imported since the war. A number of fine hawks were purchased, including a striking Long-crested Hawk-eagle, caught after being shot and wing-injured on a game farm in Tanganyika. The bird of prey collection is the finest in many years. A number of brilliant tanagers were acquired, perhaps the most spectacular of which were a Metallic Green Calliste and a Chestnut-bellied Chlorophonia. Our tanager collection, numbering nearly 30 species, is certainly among the world's finest. A lovely Costa Rican Snow Cap Humming-

bird was obtained from Oliver Griswold. We now have two hummingbirds in their fifth year in the collection and five in their third year. A pair of Hammerheads, the first seen here in twenty years, were acquired. These birds have a strange appearance and build equally strange nests—a huge, oven-like structure in a tree, entered through a side tunnel. Through the cooperation of Mr. Jack Marks of the zoo in Portland, Oregon, and Dr. William Sladen of Johns Hopkins University, four Adelie Penguins were obtained from "Operation Deepfreeze." Unfortunately, these delicate penguins have required prolonged medical treatment. A spectacular pair of Kori Bustards and a lovely pair of Secretary Birds were purchased.

On the debit side of the year's ledger were several vicious acts of vandalism, the most sadistic of which cannot go unrecorded. On July 16 three West African Crowned Cranes, four Sudan Crowned Cranes and one European Crane were beaten to death in an unbelievably cruel fashion on the African Plains. The criminals have not been caught.

Late in the summer our waterfowl collection again suffered from botulism. Wildfowl Pond and Heart Lake had been remodeled primarily to prevent such outbreaks, and none of the birds on Heart Lake were affected. However, the Wildfowl Pond's collection was hard hit, as it has been so many times in the past. Careful investigation indicated that the pond itself was not at fault but that compressed packets of grass thrown off by our rotary lawnmowers had decomposed and were the source of infection. We now believe we have established a cause-and-effect relationship upon which we may concentrate in the coming year.

Head Keeper Scott, who had achieved an international reputation during his thirty-four years of service with the Society, retired on pension. His successor, former Aquatic Bird House Keeper Bell, has been an extremely fortunate choice. Joseph Gerben, veteran Ostrich House Keeper, left on terminal leave after nearly twenty-nine years in the Park.

Mr. Conway spoke at the annual convention of the National Audubon Society on the problems of the captive Whooping Cranes and suggested a program for the 1958 season. He also lectured to the Natural History Club and In-Service Teachers' Course during the year. Increasing interest in research with captive wild birds has led to our cooperation with bird research programs at the American Museum of Natural History, Rutgers University, Cornell University and the Louise Ayer Hathaway School of Conservation Education.

Mr. Conway wrote the following articles for ANIMAL KINGDOM:

"The Amphibious Dipper," Vol. 60, No. 1.

"King of the Woods," Vol. 60, No. 2.
"Three Days With a Family of Whooping Cranes," Vol. 60, No. 4.
"Kingfishers Are Problem Birds," Vol. 60, No. 5.
"It Isn't Vanity," Vol. 60, No. 6.
"Whooping Cranes: Their Status Now and a Program for 1958," Vol. 60, No. 6.

Species New to the Collection Acquired in 1957

Adelie Penguin—*Pygoscelis adeliae* (Hombron & Jacquinot)
Barrow's Golden-eye—*Bucephala islandica* (Gmelin)
Black Scoter—*Oidemia nigra nigra* (Linnaeus)
Pale Chanting-goshawk—*Melierax musicus poliopterus* Cabanis
Gabar Goshawk—*Melierax gabar* (Daudin)
Red-backed Buzzard—*Buteo polyosoma polyosoma* (Quoy & Gaimard)
Long-crested Hawk-eagle—*Lophaetus occipitalis* (Daudin)
Erckel's Francolin—*Francolinus erckelii erckelii* (Rüppell)
Burmese Red Junglefowl—*Gallus gallus spadiceus* (Bonnaterre)
Sudan Crowned Crane—*Balearica pavonina ceciliae* Mitchell
Black Jacana—*Jacana spinosa hypomelaena* (Gray)
Puffin—*Fratercula arctica arctica* (Linnaeus)
Blue-chinned Sapphire Hummingbird—*Chlorestes notatus notatus* (Reichenbach)
Pucheran's Emerald Hummingbird—*Chlorostilbon aureo-ventris pucherani* (Bourcier & Mulsant)
Waterton's Wood Nymph—*Thalurania watertonii* (Bourcier)
Transvaal Red-faced Coly—*Colius indicus transvaalensis* Roberts
Natal Striated Coly—*Colius striatus minor* Cabanis
Southern Yellow-billed Hornbill—*Lophoceros flavirostris leucomelas* (Lichtenstein)
White-thighed Hornbill—*Bycanistes cylindricus albotibialis* (Cabanis & Reichenow)
Colombian Black-throated Barbet—*Capito maculicoronatus rubrilateralis* Chapman
Sclater's Aracari Toucan—*Pteroglossus viridis didymus* (Sclater)
Reinwardt's Toucanet—*Selenidera reinwardtii* (Wagler)
Collie's Magpie-jay—*Calocitta formosa colliei* (Vigors)
Velvet-fronted Nuthatch—*Sitta frontalis frontalis* (Swainson)
Red-headed Laughing Thrush—*Trochalopterum erythrocephalum erythrocephalum* Blanford & Oates
Northern Double-collared Sunbird—*Cinnyris reichenowi reichenowi* Sharpe
Chestnut-bellied Chlorophonia—*Chlorophonia pyrrhophrys* (Sclater)
Purple-throated Euphonia—*Tanagra chlorotica chlorotica* Linnaeus
Metallic Green Calliste—*Tangara labradorides labradorides* (Boissoneau)
Northern Yellow-throated Tanager—*Iridosornis analis porphyrocephala* (Sclater)

Census of Birds

December 31, 1957

Orders		*Species*	*Specimens*
Struthioniformes	Ostriches	2	3
Rheiformes	Rheas	2	3
Casuariiformes	Cassowaries and Emus	2	5
Tinamiformes	Tinamous	2	3
Sphenisciformes	Penguins	8	26
Pelecaniformes	Pelicans, Cormorants, etc.	7	16
Ciconiiformes	Herons, Ibises, Storks, Flamingos, etc.	30	69
Anseriformes	Swans, Ducks, Geese and Screamers	70	378
Falconiformes	Vultures, Hawks and Eagles	33	44
Galliformes	Quail, Pheasants, etc.	51	128
Gruiformes	Hemipodes, Cranes, Trumpeters, Rails, etc.	23	46
Charadriiformes	Plovers, Sandpipers, Gulls, etc.	24	57
Columbiformes	Pigeons, Doves and Sandgrouse	27	77
Psittaciformes	Parrots, etc.	25	39
Cuculiformes	Touracos and Cuckoos	5	6
Strigiformes	Owls	11	23
Caprimulgiformes	Frogmouths	1	1
Apodiformes	Hummingbirds	9	14
Coliiformes	Colies	2	3
Trogoniformes	Trogons and Quetzals	1	3
Coraciiformes	Kingfishers, Hornbills, etc.	14	21
Piciformes	Barbets, Toucans and Woodpeckers	34	53
Passeriformes	Perching Birds	253	487
	Totals	636	1,505

Summary: Orders, 23; Species, 636; Specimens, 1,505.

DEPARTMENT OF REPTILES

James A. Oliver, *Curator*
Stephen Spencook, *Head Keeper*

The outstanding event in the Reptile Department in 1957 was the successful rearing of the first captive-bred King Cobras. This was particularly gratifying because of our unsuccessful efforts to rear young in the preceding two years. Our King Cobras made zoological history in 1955 when they became the first of their species to mate, build a nest and lay eggs in captivity. This was repeated in 1956, but in neither year were we successful in rearing any young. In 1957 when the female laid a record clutch of 56 eggs we determined to explore every possibility to get the resulting 40 babies to eat in captivity—for this was the stumbling block before. Many persons telephoned and wrote in suggestions on how to feed the little snakes, but none offered any sensible ideas we had not already tried—a total of 30 different kinds of food.

Success came, as it often does, when least expected, but as the result of patience and persistence. After the little King Cobras had refused all our earlier offerings, Head Keeper Spencook offered them some still-born baby Garter Snakes. To his great surprise and our considerable relief, some of the little snakes began to feed. Gradually we had a large number of them feeding and were faced with the problem of keeping so many hungry mouths filled. Since we seemed to have solved the basic problem of how to get the youngsters to eat, we decided to offer some of them to other zoos. Thus we sent 22 of the babies to the zoological parks at Buffalo, Lincoln Park (Chicago), Philadelphia, Pittsburgh, Staten Island and Washington. At the end of the year we had four healthy young King Cobras that had just about doubled their length since they were hatched. Few of those sent elsewhere survived.

For the personnel of the Reptile Department the year 1957 has been most noteworthy for experimentation with species difficult to feed in captivity. Our success with these difficult rarities has been incomplete but most gratifying and instructive. It has enabled us to exhibit at one time the largest number of species and subspecies we have ever had and one of the largest in any zoological park in the world. Not only is the collection unique in this respect, but it is outstanding from the standpoint of the great number of rare species exhibited. For the first time in the history of the Society we have representatives of *all* living orders of amphibians and reptiles in the collection.

These achievements have not been attained without difficulties and some failures. The over-all success of the Department's activities is largely a testimony to the initiative, hard work, care and skilled attention of the keepers under the supervision of Head Keeper Spencook. Besides the young King Cobras, we undertook to feed and keep baby Taipans (never before exhibited in the United States), Mountain Devils (never before exhibited at the Bronx Zoo), Water Cobras, Bushmasters, Marine Iguanas, South American Coral Snakes, African Egg-eating Snakes, Eastern Diamondback Rattlesnakes, Caecilians, European Blind Salamanders, and a number of other species difficult to keep in captivity. The detailed accounts of our exceptional success with these species are too long to set down here, but we did have an interesting and rewarding, if busy, year.

Many rare species were added to the collection. Several of these have already been indicated above. Among the rare crocodilians were two Smooth-fronted Caimans (*Paleosuchus trigonatus*) donated by Dr. Fred Medem of Bogotá, Colombia, and two Morelet's Crocodiles (*Crocodylus moreleti*) from upper Central America. These brought the number of crocodilian species in our collection to 14, well over half the living species, and a number unequalled in any collection in this country. Outstanding turtle acquisitions included two Murray River Turtles (*Emydura macquarri*) from Australia, two Australian Snake-necked Turtles (*Chelodina longicollis*), one Hilary's Sideneck Turtle (*Phrynops geoffroana hilari*) sent as a gift by the National Zoological Park, one Hood Island Tortoise (*Testudo elephantopus hoodensis*) and two Chatham Island Tortoises (*Testudo elephantopus chathamensis*) received from Mr. Rudy Freund of LIFE Magazine. The last two species have not been represented in the collection previously. Mr. Freund also donated 16 Galapagos Rock Lizards (*Tropidurus a. albemarlensis*), 11 Galapagos Land Iguanas (*Conolophus subcristatus*) and 7 Marine Iguanas (*Amblyrhynchus cristatus*). The Land Iguanas apparently represent three subspecies, one of which is undescribed, and the Marine Iguanas comprise two races, one of which we have never had before. From South Africa Mr. Wyman Carroll sent us one Legless Plated Lizard (*Tetradactylus africanus*) and three African Legless Grass Lizards (*Chamaesaura macrolepsis*), both species being new to the collection. Two Mountain Devils (*Moloch horridus*) were obtained by purchase from Australia and are the most bizarre lizards we have ever had. These lizards feed only on ants and are difficult to keep. Ours fed readily on ants supplied by the Bird Department, but unfortunately did not survive long.

The largest number of rare arrivals were snakes. The most outstanding of these were unquestionably the 12 baby Taipans (*Oxy-*

uranus scutellatus canni) sent to us by Mr. Kenneth L. Slater of Port Moresby, New Guinea. This is the largest and most dangerous snake in Australia and New Guinea and with the King Cobra and Black Mamba, is one of the three most dangerous snakes in the world. To our knowledge this is the first time this species has ever been exhibited in the United States, and probably the first time outside of Australia and New Guinea. The National Zoological Park in Washington sent us some exceptional snakes that include two "first-time" species for us, the Formosan Rat Snake (*Elaphe taeniura friesei*) and the Mountain Pit Viper (*Trimeresurus monticola*). They also included a Habu (*Trimeresurus flavoviridis*) and a Yellow Habu (*Trimeresurus elegans*), both from the Ryu Kyu Islands and species we did not have.

A tropical fish importer operating under the name of the Roosevelt Aquarium unexpectedly received a shipment of 128 snakes from the Belgian Congo—sent to him in place of his order for fish. Since he knew nothing about snakes, he asked us to unpack the shipment and identify the snakes—we to keep any that were venomous. As a result we obtained a bonanza of 28 rare and colorful Bush Vipers (*Atheris squamigera*), a species we were delighted to have and, even more welcome, two rare Water Cobras (*Boulengerina annulata*), a species we have been trying to obtain for four years.

Earlier in the year we received a large assortment of interesting snakes from another part of the Congo. These included one Egg-eating Snake (*Dasypeltis fasciata*), one Velvet Tree Snake (*Boiga blandingi*), one Black-lipped Cobra (*Naja melanoleuca*), one Jameson's Mamba (*Dendroaspis jamesoni*), two Rhinoceros Vipers (*Bitis nasicornis*), one Great Lakes Bush Viper (*Atheris nitschei*) and one Hairy Bush Viper (*Atheris hispida*).

Through the efforts of Dr. Beebe and the staff of the Department of Tropical Research, especially Dr. David W. Snow, we received three Bushmasters (*Lachesis muta*) from Trinidad. A fourth specimen was sent from the same locality by Dr. Wilbur Downs of the Rockefeller Regional Virus Laboratory. These specimens were greatly desired for experimentation in an effort to induce them to feed. By lowering the temperature to about 72° F. we did succeed in getting one individual to eat several times. Unfortunately we placed it on exhibition and it has not fed since. While our experiments are inconclusive at the present time, we do feel that the lower temperature is an important factor in the keeping of these spectacular tropical snakes.

Founder in Perpetuity Saul Blickman succeeded in securing three Banded Kraits (*Bungarus fasciatus*) for us through the assistance of Mr. Humayun Abdulali of Bombay, India. Dr. F. J. Simmonds sent us

23 specimens of an interesting small caecilian (*Schistometopum thomense*) from São Tome Island in the Gulf of Guinea. These secretive, legless, wormlike amphibians are the sole representatives of their order, the Apoda, in our collection. Mr. Charles Mohr presented a specimen of the European Blind Salamander or Olm (*Proteus anguinus*). This fascinating species is found only in the underground streams of south-central Europe. Its pale, ghostlike appearance indicates a number of specializations for an aquatic life in total darkness. Both the caecilians and the Olm are feeding well on earthworms.

During the year we received a total of 861 specimens—an increase of 95 over last year. As usual, most of these were gifts of pet turtles and pet crocodilians, mainly caimans. We purchased 121 specimens and obtained 44 through incoming exchanges. We sent out 100 individuals on exchange and donated 43 specimens to institutions or individuals for research investigations. We also sold seven excess American Alligators. The following organizations or individuals participated in exchanges and donations of specimens: the Department of Tropical Research; the Staten Island Zoo; the American Museum of Natural History; Museum of Zoology, University of Michigan; Museum of Comparative Zoology, Harvard; Department of Biology, Queens College, New York; the Zoological Society of San Diego; Lincoln Park Zoo, Chicago; National Zoological Park, Washington, D. C.; Philadelphia Zoological Garden; Pittsburgh Zoo; Rochester Zoo, New York; Manchester Zoo, England; Natural History Museum, Nice, France; the Suffolk Museum, Stonybrook, N. Y.; New York University Medical School; Buffalo Zoo; El Paso Reptile Gardens; The Walker Laboratories, New York; the Catskill Game Farm, Catskill, New York; the United Fruit Company, Weehawken, New Jersey; Mr. Charles Mohr, Greenwich, Connecticut; Drs. Wilbur Downs and Thomas Aiken, Trinidad, B. W. I.; Dr. F. J. Simmonds, Trinidad, B. W. I.; Port-of-Spain Zoo and Victoria Museum, Trinidad, B. W. I.; Mr. Kenneth L. Slater, Port Moresby, New Guinea; Dr. Konrad Lorenz, Max-Planck Institute, Germany; Mr. John Seago, Nairobi, Kenya; Mr. V. J. Wilson, Fort Jameson, Northern Rhodesia; Fitzsimons Snake Park Laboratory, Durban, South Africa; Natural History Museum, Pretoria University, South Africa; Royal Zoological Society, Dublin, Ireland.

Because of inadequate housing for our giant tortoises and large Galapagos Iguanas, we have sent some of them to other institutions on a loan basis. Thus, Mr. Robert Mattlin, Director of the Crandon Park Zoo in Miami, Florida, has kindly accepted our three largest tortoises as winter guests in his zoo. We hope the warm sunshine of southern Florida will restore them to good health. Five of the iguanas were sent to the American Museum of Natural History's Department

of Amphibians and Reptiles where Mr. Charles M. Bogert will study their temperature requirements. One additional Marine Iguana was sent to Dr. Knut Schmidt-Nielsen of Duke University for observation and study in connection with its water and salt regulation.

Unfortunately, the year marked the passing of one of our best-known reptile personalities—the "Old Bum." The "Bum" was a seven-and-a-half-foot alligator so docile and gentle he could be patted, sat upon or picked up without protest. He was an individual with an interesting life story that included a brief sojourn in the Bowery, whence his name, and posing with royalty and other celebrities. It was good to have this large and tame individual in the collection and we will miss him around the Reptile House.

Again this year Dr. Oliver was privileged to spend a month at the Simla station in Trinidad, B. W. I., with Dr. William Beebe, Miss Jocelyn Crane and Mr. Henry Fleming. It was a fascinating educational experience to work and study with this group at their pleasant laboratory in the jungle-shrouded hills of northern Trinidad. The Curator of Reptiles continued his studies on the reptiles of the island, and methods of collecting in the tropics. He marked and released individual snakes on the St. Pat's section of the station land. He returned to New York with an assorted collection of 50 amphibians and reptiles, including such interesting treasures as Luminous Lizards, Golden Frogs, a Bushmaster, a large Boa Constrictor, several Fer-de-Lance, Cooke's Tree Boas, Coral Snakes, Snail-eating Snakes and many others.

As a counterpart of the field studies in Trinidad, Dr. Oliver started an investigation of the movements, activity, reproduction, growth and population dynamics of the snakes in an undisturbed forest area in southern New York. Starting last summer, he marked and released a number of individual Black Snakes and Copperheads around a den location. Several of these snakes have been recaptured on subsequent occasions and the study is already yielding valuable information about their habits. Other research activities have been continued on baby turtles in captivity, the seasonal physiology of the Eastern Box Turtle and the behavior and growth of reptiles in captivity. Several cooperative research projects were carried out or material was supplied for other individuals in other departments of the Zoological Society or in other institutions, including the American Museum of Natural History, New York University Medical School, the Department of Biology at Duke University and the Department of Biology at Queens College, New York.

Dr. Oliver was reappointed a Research Associate in the Department of Amphibians and Reptiles of the American Museum of Natural

History. He also was appointed a member of the Advisory Committee of the Mianus River Gorge Conservation Committee of the Nature Conservancy. He was invited to give a paper on "Work in Herpetology with High School Students" as part of a conference on the "Development of High School Students Toward Careers in Biology." This conference was sponsored jointly by the New York Academy of Sciences and the New York Association of Biology Teachers. Dr. Oliver also spoke during the year to the following groups:

Graduate Class in Vertebrate Paleontology, Columbia University.
Rho Chi Honorary Pharmaceutical Fraternity of the College of Pharmacy, Columbia University.
Natural History Class, Adelphi College, New York.
Field Naturalists' Club of Trinidad, B. W. I.
Westminster Fellowship Group, Pleasantville, New York.
Blue and Gold Cub Scout Dinner, Pleasantville, New York.
University Club, Pleasantville, New York.
Zoological Park, In-Service Teachers' Course.

The Reptile Club started its fourth year under the sponsorship of the Zoological Society. Attendance during the year at some meetings was as high as 70 and 80 enthusiastic boys and girls.

Dr. Oliver published an article on snakes in the "Yearbook of the American Peoples Encyclopedia" and delivered the manuscript for a popular book on snakes to be published by The Macmillan Company of New York. This book will be entitled, "Snakes In Fact And Fiction." The following articles were published in ANIMAL KINGDOM:

"Klauber's Rattlesnake Book"—Vol. 60, No. 2.
"Our Hawaiian-hatched Panamanian Poisonous Frogs"—Vol. 60, No. 3.
"Feeding Baby King Cobras Is Easy (They Say)—You Give Them Milk"—Vol. 60, No. 4.
"How To Feed Baby King Cobras"—Vol. 60, No. 5.
"How To Feed A Bushmaster"—Vol. 60, No. 6.

CASTING POOL. With the transfer of the Aquarium staff to Coney Island, the operation of the orphaned Casting Pool was placed under the surveillance of the Curator of Reptiles.

The pool opened in June and operated through Labor Day in September. The total attendance was 5,100, most being on-lookers, picnickers and guardian parents. Only 32 individuals actually practiced casting. The neophyte fishermen departed with a total of 101 fish, a take materially inferior to that of the vandals who drained the pool at night and scooped out the stranded fish. A total of $8.50 was collected in fees during the season.

Census of Reptiles and Amphibians

December 31, 1957

Orders		*Species*	*Specimens*
	Amphibia		
Apoda	Caecilians	1	2
Caudata	Salamanders	10	20
Salientia	Frogs and Toads	17	26
	Reptilia		
Testudines	Turtles	60	107
Crocodilia	Alligators and Crocodiles	13	53
Rhynchocephalia	Beakheads	1	1
Squamata			
Sauria	Lizards	29	65
Serpentes	Snakes	109	164
Various Orders	Research Specimens	..	175
	Totals	240	613

Summary: Orders, 7; Species, 240; Specimens, 613.

Combined Census

December 31, 1957

	Species	*Specimens*
Mammals	168	514
Birds	636	1,505
Reptiles and Amphibians	240	613
Totals	1,044	2,632

ANIMAL HOSPITAL

Leonard J. Goss, *Assistant Director & Veterinarian*
Charles P. Gandal, *Associate Veterinarian*

For many years it has been the routine practice of the Animal Hospital and Laboratory to run a series of standard tests on newly-received animals, particularly mammals. These tests were widened in the past year to include virtually all birds added to the collection, and thus fecal examinations for parasites, cultures for bacterial and fungus infections, comprehensive blood tests and other less frequently used procedures were applied to 536 animals, an increase of 85 per cent. over the average of the preceding six years.

Of 432 stool examinations for parasites, 309 were positive, but of 127 examinations for paratyphoid organisms only two were positive. Twenty-eight birds were examined for aspergillosis and 18 were found in be infected.

On two occasions, months apart, the rare Tuatara on exhibition in the Reptile House was found in what appeared to be a state of shock. No cause for this condition has been discovered, but fortunately the reptile recovers promptly when placed under oxygen and subsequently resumes its normal, lethargic way of life.

Severe pododermatitis was observed in two young animals, a three-months-old Reindeer and a two-months-old Blue Duiker, both born in the Zoological Park. Both recovered fully, although the Reindeer required several weeks of intensive treatment with antibiotics and the new enzymatic debriding agents and the Blue Duiker developed osteomyelitis late in the summer, which delayed its recovery.

A new type of "shuttlecock" intramedullary pin was employed in the treatment of fractures of the wing in birds and was gratifyingly effective in the larger birds; further experience and clinical trials should lead to modifications that will adapt it to all birds.

For some years clinical data have been accumulating on the effectiveness, dosage and duration of tranquilizers in wild animals. Any considerable body of conclusions is still well in the future, however.

Vaccination of new cat animals against feline panleukopenia has long since become routine and has proved its effectiveness in controlling this highly contagious disease. We have had plenty of experience in the vaccination of Tigers; the 28th and 29th offspring of our breeding pair were vaccinated during the summer.

Four and a half months of treatment were required to clear up cases of internal parasites and a stubborn, chronic respiratory infection in four young Chimpanzees. They were finally able to go on exhibition late in the fall.

As reported by the Mammal Department, the male Platypus died on September 18. The animal had been losing weight gradually all summer long. Post-mortem examination, including section of various organs, revealed no lesions; we can only suppose that the known age of nearly 13 years is approximately the lifespan of this primitive creature.

Particularly distressing was the loss of three Marco Polo Sheep and two Markhor. The former were in poor condition when they arrived and never thrived; the male Marco Polo died of verminous pneumonia and the female of enteritis.

Consultations and Visitors. Consultations were held with Drs. Heemstra and Swindle of the Inspection and Quarantine Division of the U. S. Department of Agriculture about quarantine regulations of the importation of wild ruminants and swine. The Schering Drug Company was advised on the operation of its primate colony. Many consultations were held with curators, architects and builders in regard to construction plans. Dr. Gandal visited the St. Louis Zoological Garden, in company with an architects' representative, to examine a working Elephant Seal pool that might serve as a model for a proposed installation at the New York Aquarium.

Visitors to the Animal Hospital included Dr. Wetzel of the Zoology Department of the University of Connecticut and a group of students; R. T. Pursell, who handles the veterinary work of the Taronga Park Zoo in Sydney, Australia; Dr. James Wright, newly-appointed Veterinarian of the National Zoological Park in Washington; Dean Thomas, the veterinary student at Ohio State University who played a crucial role in the first hours of the Gorilla born in the Columbus, Ohio, Zoo; Drs. Mapes and Woods of the Zoology Department of Middletown Community College; Dr. Donald Baker of the Parasitology Department of Cornell Veterinary College; Peter Treallu, a veterinary student in Venezuela; and numerous students in the Cornell Veterinary College.

Chemicals designed to deter mammals and birds from ingesting certain foodstuffs were demonstrated in the Zoological Park by Dr. Morley Kare of the Physiology Department of Cornell Veterinary College. The results, with wild animals, were largely negative.

Publications, Meetings and Lectures. Drs. Goss and Gandal cooperated with Dr. J. C. Turner in the latter's paper on "Absence of Lecithin from the Stromata of the Red Cells of Certain Animals (Ruminants) and Its Relations to Venom Hemolysis." Dr. Gandal

worked with the same author in the preparation of two papers dealing with specific differences in lipid composition of red cells. Dr. Gandal also cooperated with Drs. Engel, Pert and Woods of the Department of Medicine of the New York Hospital in a research project on the phylogenesis of serum protein and plasma cells.

Dr. Goss attended the meeting of the American Association of Zoological Parks and Aquariums in Minneapolis and the Cornell University Veterinary Conference at Ithaca. Dr. Gandal attended the New York Academy of Sciences-U. S. Public Health Service symposium on animal disease and human health. Both Veterinarians were present at numerous meetings of the New York City and Westchester County Veterinary Medical Societies.

Dr. Goss addressed the junior class at the University of Pennsylvania Veterinary College and the Hudson Valley Veterinary Medical Society at Catskill, N. Y. Dr. Gandal spoke before the Junior American Veterinary Medical Association at Cornell, the Mamaroneck University Club, and the Scarsdale, Larchmont, Mount Vernon and Yonkers Rotary Clubs.

Appointments. Dr. Goss was elected President of the American Association of Zoological Parks and Aquariums. He was reappointed as consultant to the Army Medical Service of Walter Reed Army Medical Center, and was appointed to serve on the public relations committee of the New York State Veterinary Medical Society.

Dr. Gandal was elected a Fellow of the New York Zoological Society and was appointed chairman of the Public Relations Committee of the Westchester Veterinary Society.

Cooperative Research. The Animal Hospital and Veterinary staff cooperated with the following:

Albert Einstein College of Medicine
American Museum of Natural History
Brookhaven National Laboratory
Burroughs Wellcome & Co.
Ciba Pharmaceutical Products
College of Physicians and Surgeons, Department of Dermatology
Cornell University, Veterinary College
Cornell University, Virus Research Laboratory
Creedmore Institute
Harvard Medical School, Department of Anatomy
The Johns Hopkins Hospital
Mayo Clinic, Section of Bacteriology
Mount Vernon Hospital
New York Hospital, Department of Medicine
New York University-Bellevue Medical Center, Department of Pediatrics
Rockefeller Institute for Medical Research
Rutgers University, Serological Museum
Schering Corporation
U. S. Dept. of Agriculture, Agricultural Marketing Service, Poultry Division

Ninety specimens were sent out from the Animal Hospital to research institutions. Twenty specimens (10 mammals, 9 birds, 1 reptile) were turned over to the American Museum of Natural History.

Statistics. The Zoological Park's First Aid service, which operates under the direction of the Hospital staff, handled 2,447 cases. Zoo employees gave 17 pints of blood to the Red Cross Blood Bank, all being used for transfusions for 9 employees or members of their families.

Birds hospitalized during the year numbered 82 for 1,150 days, and 132 mammals were hospitalized for 6,898 days. Outpatient treatments numbered 210 for mammals, 191 for birds and 32 for reptiles.

In the mortality tables that follow, "Total in Collection" is arrived at by adding to the census at the beginning of the year all animals acquired by purchase, exchange or gift or born alive in the collection. Animals disposed of alive by sale or exchange during the year are not deducted. No acclimatization period following birth or arrival is allowed.

Mortality Table

Mammals

Year	*Total in Collection*	*Died*	*Mortality Percentage*
1957	679	130	19.14
1956	672	129	19.19
1955	716	131	18.30
1954	737	110	14.92
1953	733	115	15.68
Totals	3,537	615	
	Average mortality for past 5 years		17.39
	Average mortality for past 21 years		19.01

Birds

Year	*Total in Collection*	*Died*	*Mortality Percentage*
1957	1,870	309	16.52
1956	1,803	264	14.64
1955	1,830	316	19.50
1954	1,450	278	19.17
1953	1,728	271	15.68
Totals	8,681	1,438	
	Average mortality for past 5 years		16.56
	Average mortality for past 21 years		16.34

PUBLICATION AND PHOTOGRAPHY

WILLIAM BRIDGES, *Curator*
DOROTHY REVILLE, *Editorial Assistant*
SAM DUNTON, *Photographer*
HENRY M. LESTER, *Photographic Consultant*

EXIGENCIES OF THE AQUARIUM dominated activities of this Department in 1957, for it is in the nature of a new institution devoted to living animals that much of the collection does not arrive until the last minute (thereby putting a strain on the label-printing section); effective motion pictures and even still pictures cannot be made until the collection is all in place; and much of the printing (Guide Book, souvenir postcards, promotional leaflets) has to wait, too, until the institution has cleaned up the construction debris and is all but ready to open its doors to visitors.

Labels, photography and printing *did* all fall into place, in good time, but they certainly would not have done so without a great deal of very hard work on the part of the Staff Photographer, the Editorial Assistant, the Printer and the Darkroom Assistant; it was a joy to watch the speed and precision with which they worked when the pressure was great.

Mr. Dunton produced two major motion picture films in color, one on the physical appearance and collecting activities of the Aquarium, which necessitated a photographic trip to Bermuda in the early fall, and the other on the year's activities in the Zoological Park. Incidental scenes were made in the Animal Hospital on the technique of removing parakeet tumors.

The Staff Photographer turned in 40 kodachrome transparencies, from which postcards in color were made for sale at the Aquarium, and 803 other negatives and transparencies. This is an unusually large volume of photographic work and it showed up all along the line—in increased darkroom work by Mrs. Castora, who turned out 1,065 prints for staff use and the Society's publications, plus the usual run of paid orders for outside users of our collection.

Mr. Dunton attended the annual meeting of the Biological Photographic Association at Rochester, Minn., and presented a paper on the color photography of fishes. His second book, "Hold that Tiger!" was published.

Mr. Lester, our Photographic Consultant, worked with Curator Conway and Mr. Dunton in designing and fitting out a studio for the

high-speed photography of bird flight, and at the year's end it was almost ready to be put into operation.

Mr. Larsen, our Printer, was called upon to label the entire Aquarium collection in addition to keeping up with changes and new labels in the Zoological Park. He supplied well over 500 new labels, 171 on plastic, as well as handling the normal run of forms, menus and miscellaneous small printing jobs.

All of the still photography and label printing flowed into and out of Mrs. Reville's section of the Department, and she probably set a record for multiplicity of jobs in one year. Not only was she required to train a new assistant, Mrs. Mary Coder, but much of the cataloging of new negatives and new labels fell on her along with continued replacement of worn-out photographic albums, and she handled all the Department's photographic airbrushing (at a considerable saving), laid out six issues of *Animal Kingdom,* designed a 4-page promotional folder for the Aquarium and, with Mr. Atz of the Aquarium staff and Mr. Bridges, gave up a solid week of night-and-day work to the design, writing and preparation for the press of a 64-page Aquarium souvenir Guidebook.

In the spring the Department edited and saw through the press a 614-page book, "The Physiology of the Pituitary Gland of Fishes," by Dr. Grace E. Pickford of the Bingham Oceanographic Laboratory and Mr. Atz of the Aquarium. The book, published by the Zoological Society, has had excellent reviews and a world-wide sale to specialists and research people.

During the fall Mr. Bridges gave a talk on "Zoo Publications and Publicity" at the convention of the American Association of Zoological Parks and Aquariums at Minneapolis. "Zoo Doctor," a book for young people, by Mr. Bridges, was published in late summer.

Fourteen papers appeared in Zoologica, in a total of 168 pages. The Sixty-first Annual Report was published on May 26, and the six regular numbers of Animal Kingdom were issued.

DEPARTMENT OF EDUCATION

Herbert J. Knobloch, *Associate Curator*
Marion P. McCrane, *Assistant*

Following the trend of recent years, 1957 was again a year for setting records, as borne out by the table below. The school/class attendance figures are new highs.

Schools and Organizations	3,050
Classes and Organized Groups	4,070
Total School/Group Attendance	166,347

May and June, our busiest months for visits to the Zoological Park and Farm-in-the-Zoo by school classes and other organized educational groups, also set records.

	May	*June*
Schools and Organizations	1,160	795
Classes and Organized Groups	1,533	1,350
Total School/Group Attendance	61,833	41,545

The class/group total for May is a new record for any May and any one-month period in the history of the Park. The same figure for June is also a new high for that particular month.

Visual Aids. The Department again assisted the Department of Publication and Photography in the production of the several motion pictures brought out during the year.

Four more films produced in the last several years, namely, "Lions at Home," "Hippo!," "Antelopes on the Plains of Africa," and "Adelie Penguins of the Antarctic," were submitted to McGraw-Hill Text Films for international distribution on a sales basis. This makes a total of 14 titles turned over to McGraw-Hill Text Films to date.

Film rental orders numbered 99. Audiences viewing our films on these rentals totaled 7,086. Staff officers showed films 28 times to over 3,000 persons. This is exclusive of the number of films shown to the teachers attending the In-Service courses by various staff officers. On 23 occasions our films were loaned out for special showings and 4,975 persons saw them. There were only 2 preview requests.

Guided Tours. Throughout the year 95 guided tours of the Park and the Farm were conducted for 3,211 students. Many were of a special nature. Field biology classes from the Bronx High School of Science were shown "behind-scenes," and biology classes from the Great Neck Junior High School were conducted on special tours of the Reptile House on five occasions. More than a few tours were con-

ducted on the classification of animals, and Tractor Train tours were given for physically handicapped children. Six "behind-the-scenes" tours were conducted for 30 Society members and friends. These were in addition to the regular Saturday morning members' tours conducted during the spring and fall.

School Lecture Service. Miss Marion McCrane visited 90 schools, institutions and organizations and gave a total of 241 talks to 33,026 children. The service continues to be exceedingly popular and more in demand than ever before. Programs are being scheduled many months in advance.

Lectures. Department members gave 22 lectures, addressing approximately 1,330 persons. In addition, Mr. Knobloch made nine television appearances.

Question House. The Question House opened for the season on Saturday, April 20, and closed on Monday, November 11. There was no one in attendance only 11 days because of bad weather or low attendance in the Park. Visitors totaled 48,133, and 750 Kodachrome slides were sold during the time of operation. A breakdown of the questions received is as follows:

Miscellaneous animal questions	10,897
Questions requiring research	50
Platypus questions	874
Directional questions	2,688
	14,509

Personnel. Miss Janet M. Crawley left the Department on January 31 to study marine biology and do graduate work at the University of Miami. Miss Lillian Gerber joined the staff of the Department on March 26 and resigned on October 18.

Miscellaneous. During the spring the New Haven Railroad again ran special trains to the Zoological Park from various points throughout New England. In all, there were nine trains on seven Saturdays, bringing a total of 7,959 passengers.

Mr. Knobloch continued to serve as Chairman of the Zoological Park's Safety Committee.

The 15th and 16th In-Service courses for both elementary and high school teachers, entitled "Utilization of the Bronx Zoo in the Science Program of Elementary and Secondary Schools," were given during the spring and fall terms. Mr. Knobloch supervised the courses for the Zoological Park and acted as Board of Education coordinator and instructor, as in the past.

Two more natural history training courses for Girl Scout Leaders

were given during the spring of the year. One course was on Amphibians, Reptiles and Mammals and the other on Birds and Insects. Each course ran for six weeks. As in previous years, the leaders met at the Park on Thursday of each week for an almost all-day session. The courses again consisted of lectures, demonstrations, slide and film showings, sound recordings and guided tours. Additionally, for these particular courses, mounted specimens and study skins were borrowed from the American Museum of Natural History to supplement our teaching materials at the Park. The courses were condensed but nevertheless comprehensive ones in popular zoology and included some taxonomy. They more than covered the material required in the Girl Scout Handbook for the Girl Scout Merit Badges.

COMPTROLLER'S DEPARTMENT

HERBERT F. SCHIEMANN, *Comptroller*

OPENING OF THE AQUARIUM increased considerably the responsibilities of the Comptroller's Department. As an independently-operated organization located many miles from the New York Zoological Park, the Aquarium has its own administrative and operating staffs. Its books and records, revenues and expenditures, must be kept separate from other Society details. The Comptroller's Department was called upon to assist in setting up office procedures and controls over revenues and expenditures. At present, and as a matter of daily routine, this Department keeps the Aquarium's books and records, prepares its payrolls, pays bills and handles its purchasing, insurance and related office problems. In addition, we have extended our auditing functions to cover the Aquarium.

Park Facilities sales fell somewhat from the peak reached in 1956. Our experience was similar to that of many other organizations in 1957 in that the net income from sales at restaurants, souvenir stands and other services fell below 1956.

We are indeed thankful for the loyal and efficient service which the employees of this Department have given unstintingly, and also for the helpfulness of other Departments. It is a fact in budgetary matters that, without genuine cooperation and sympathetic understanding by all sections of an organization, it would not be possible to budget successfully.

CONSTRUCTION AND MAINTENANCE

CHARLES B. DRISCOLL, *Superintendent*

ALL REQUESTS for construction were carefully evaluated in 1957 and only essential work was undertaken because of the steadily rising material, construction and building costs.

Two sizeable undertakings designed and supervised by the Department of Parks were completed. One was the removal of the old heating system serving both the Small Mammal and the Ostrich Houses and the installation of a three-zone forced hot water system. The other was the installation about the Park of 611 concrete benches, equivalent to approximately 2,000 linear feet of seating space.

For increased efficiency of the Pony and Animal Rides, a plan was designed and executed to combine all rides in one operation. This involved construction in the area north of the Elephant House of two Riding Tracks, a Camel-loading platform, ticket booth and fences, and relandscaping. To complete this change the area immediately west and north of the Children's Zoo was redesigned. The north end of the Children's Zoo was enlarged, new attractions were added, a new ticket booth and fence were erected on the east side, and new plantings were made, to feature azaleas, andromedas, roses and flowering dogwoods.

Other construction jobs completed by contractors and zoo forces were the excavation of mud and the paving of Heart Lake, erection of a new chain-mesh fence around the perimeter of that pond, construction of a pool and shelter for the Giant Otter west of the Small Mammal House, and building of a new shelter for Elands and Aoudads at the African Plains annex and new winter quarters for the Platypuses in the Lion House basement.

When the Aquarium was moved to Coney Island, its former home in the Lion House was dismantled, the west windows of the building were repaired and fibre glass window lights were installed.

Other important but smaller jobs completed were new guard fences in front of the Red and Asiatic Deer corrals, new corral fences and gates at the Guanaco and Gayal corrals, an out-door turtle enclosure at the Reptile House and alterations in the Indo-Malayan cage of the Large Bird House. The octagonal cage south of the Aquatic Bird House was dressed up with a new color scheme and fibre glass skylights. Repairs were made to the Polar Bear cages, the corral doors

of the Ostrich and Kangaroo Houses and the windows and corral doors of the Zebra House.

Alterations are in progress in the Heads & Horns Building. The old wall fabrics in the south hall were removed, a new covering applied and fluorescent lighting installed.

In keeping with the color scheme inaugurated in 1950, the following structures were painted: Eagle and Vultures, east side cages of Large Bird House, Wolverine Exhibit, the interior of Lion, Zebra and Penguin Houses, keepers' passages and rooms of Small Mammal House and more than a thousand restaurant tables and chairs.

In addition to the usual work of the Maintenance Department, several areas of the Park were relandscaped and planted. Young trees were set out in the Deer Ranges, a nursery of 200 small trees of varying species was established in an open field in our wooded area and the Wild Fowl Pond was graded and landscaped. One hundred and seventy-three dead trees over 6″ and 99 under 6″ in diameter were removed.

A survey of American elm trees now in the Zoological Park revealed 1,228. A similar survey in 1937 found approximately 1,500. This indicates a loss of about 1% per year, primarily as a result of the Dutch Elm disease. Twenty-one American elms were found to be infected and were removed. In order to keep the disease in check the elms are sprayed three times a year and infected trees are removed and burned.

Mr. George Russell was appointed Assistant Superintendent of Maintenance and Construction. He was formerly Junior Civil Engineer in the City of Mt. Vernon.

FACILITIES DEPARTMENT

EDWARD KEARNEY, *Manager*
EDWARD QUINN, *Assistant Manager*

AVAILABILITY OF HELIUM might seem to have little bearing on the revenues of the Facilities Department of a Zoological Park—but it does have. In 1957 it was impossible to get supplies of helium to inflate the toy balloons that so fascinate children. No satisfactory substitute was available and so we discontinued the sale of balloons. Gross revenue from helium-filled balloons in 1956 had been $13,000,

and the shut-down in 1957 helps to explain why souvenir sales fell off by about 10 per cent.

A major change was made in food service facilities, the refreshment stand at the Farm-in-the-Zoo being replaced by a bank of four vending machines dispensing milk, chocolate milk, ice cream, carbonated soft drinks and candy. The machines are supplied and serviced by our regular vending machine attendant, without adding to labor costs, and it is gratifying to be able to report that sales were at about the same level as in the previous year, while profits doubled. A new animal-food vending machine was installed near the Sheep Corral at the Farm.

Twelve new animal-food vending machines were installed in the Zoological Park proper and sales increased by about 30 per cent., as a result of increased vending and storage capacity of the new machines.

Sales in the four restaurants maintained their previous levels but profits were less because of higher labor costs.

Rental of rowboats was off and the entire operation is under study, with a possibility of developing it in a new location, the Bronxdale area.

MISCELLANEOUS OPERATIONS AND SERVICES

Children's Zoo. The continued popularity of the Children's Zoo, under the supervision of Corrine Dalsgaard, is attested by its attendance figure of 325,340 for 1957. During the seventeen years it has been in operation, the Children's Zoo has been host to almost five million visitors.

Riding Tracks. The old Pony Track encircling the Children's Zoo was abandoned early in 1957 and a combined Camel, Donkey, Llama and Pony Track was built on the site of the former Camel Track. Frank Beehn, formerly an instructor with the New York City Mounted Police, was engaged as Riding Track Master and under his capable guidance the track has functioned exceptionally well, and net income was 40 per cent. greater than in the best previous year of the past five years. Two of the oldest ponies were retired to pasture after many years of faithful service.

Tractor Trains. The seven trains carried 656,873 passengers, as against 621,034 the previous year.

Farm-in-the-Zoo. The Farm-in-the-Zoo was open from April 13 to November 11 under the superintendency of James Coder. The attendance of 84,213 included 21,657 children admitted free in conducted groups, an all-time record for the Farm.

Several features were added, including a full-size John Deere tractor, a Sicilian donkey cart and a hog-loading platform. A new turkey corral was constructed and numerous forsythia plantings were made.

Four cows, three calves and a portion of their feed were supplied by Sealtest and Breyer's Ice Cream. Children's Zoo stock was quartered at the Farm during the winter. Eggs were supplied for the Duck-billed Platypuses, and five dozen fertile eggs were sent to local high schools for science class projects. Farm production totals were: Wool, 110 pounds; Poultry, 851 pounds; Eggs, 795 dozen; Pork, 3,875 pounds.

Census of Farm Livestock

December 31, 1957

Donkey	1
Belgian Horse	1
Hogs	5
Sheep	12
Goats	6
Geese	23
Ducks	37
Turkeys	12
Chickens	171
Pigeons	120
Total	388

THE AQUARIUM

Christopher W. Coates, *Director*
James W. Atz, *Associate Curator*
Carleton Ray, *Assistant to the Director*
Ross F. Nigrelli, *Pathologist*
Myron Gordon, *Geneticist*
Aage Olsen, *Superintendent*

In the official records the dates have been duly entered: New York Aquarium opened at Coney Island on June 5, 1957; Final Certificate of Occupancy issued October 16, 1957. Such are the minimum facts that encompass the rebirth of an institution. To this we may add that between the opening day and December 31 the total attendance was 329,693 of which 51,344 were school children in organized groups. A census of the collection and the financial statements will be found elsewhere in this report, but our immediate concern is with the *how* behind these figures, the multifarious activities that brought the Aquarium to life and that must continue and also expand if our institution is to regain the reputation it once deserved as the greatest Aquarium in the world.

Although we had been in theoretical possession of our building for three months at the beginning of the year, we were still not in actual possession of all of it. A number of contractors were still finishing up their work, and we were plagued by certain functional inadequacies of the structure, principally an inability to get enough clear water through the intake line from the ocean. Many of our exhibition tanks, including the large Oceanic Tank, were still empty, and all of them lacked decoration. The Oceanic Tank in particular required glazing, painting and a tremendous raft for the animals to rest upon. The penguin and Electric Eel exhibits and the demonstration of fish noises had to be prepared. Not a single label existed. The restaurant and the souvenir counter were neither completely equipped nor decorated, and the type of merchandise they were to sell was as yet unselected. Operating schedules and systems of financial control had to be devised.

These were the bulk of our *anticipated* needs, but as new problems and perspectives developed, we found that a host of additional ones required attention. A 500-foot palisade along the Boardwalk was erected. A cinder-top extension was added to the parking lot, increas-

ing its capacity by 600 cars. Air-conditioning the underground offices and laboratory became a necessity. Restaurant and exhibition halls had to be repainted and new guardrails installed. A roofed and partially enclosed area was constructed at the rear of the building to house a walk-in refrigerator for animals foods and various disposal units. Finally, there were innumerable alterations to be made in the plumbing, heating and other systems—changes indicative of the complexity of public aquariums and the fallibility of men.

In conjunction with changes in our water circulations, we experimented with different types of filters. One new type under test consists of a cloth of bonded plastic fibers. In these tests we have had the cooperation of the inventor, Mr. Carl Pace. Toward the end of the year we installed a commercial diatomaceous earth filter as an auxiliary in one of our most troublesome systems. It, too, shows promise but not perfection in its performance.

Our system of labels is far from perfect, but we do believe that we can legitimately claim to be the best-labeled of all aquariums. We have attempted to present a considerable amount of information, but in diverse ways so that the element of visitor fatigue is reduced to a minimum. Our labels are mostly of three types. Those concerned with identification are short and simple and depend on a colored illustration of the creature in question. We were fortunate in being able to obtain the services of an excellent artist, Mr. Tejei Takai, to make the drawings. The second type is an informative label printed on translucent plastic and containing basic, interesting data on the habitats or types of animals on exhibition. The third is a talking label, heard by means of a telephone head-set which may be plugged into a strip mounted under the railing in front of the exhibition tanks. Each strip is connected to its own continuously playing tape-recorder. By paying a small rental fee, the visitor thus receives a different brief informal lecture on each exhibit. Since they can be recorded in a matter of minutes, the talking labels are particularly well adapted to new exhibits or to call attention to things currently going on inside an exhibition tank. In preparing the labels, Associate Curator Atz drew on material gathered for the purpose as early as 1950.

In many of these endeavors we had the invaluable assistance of staff members from the Zoological Park, especially Messrs. Bridges, Driscoll, Kearney and Schiemann, and their able departments.

Until Labor Day we operated on a twelve-hour exhibition day, closing time being 10:00 p.m. This imposed severe restriction on our operations, in particular those involving the cleaning of the Oceanic Tank, which takes several hours to empty and refill, and the series of 13 small tanks on the south wall of the main exhibition hall, which

must be serviced from the front, the visitors' area. Crowd control was sometimes a formidable problem and there were occasions when we had to halt the sale of tickets temporarily in order to relieve the pressure within the building. Feeding schedules for the Oceanic Tank and the outdoor pools were arranged to draw visitors out of the building at strategic times.

The establishment of a new Department of Marine Biochemistry and Ecology, with Dr. Nigrelli as its Chairman, provides an excellent opportunity for the Zoological Society and the Aquarium to make substantial contributions in a field of biological research that promises results of great theoretical and practical value. Not only does it appear that the sea has great potentialities as a source of pharmaceuticals, but the study of the biochemistry of marine environments is undoubtedly a fundamental approach, and perhaps the only fundamental approach, to the economics of the productivity of the sea. We should add that such studies also give every promise of improving our methods of exhibiting marine life in captivity and thus have a distinct bearing on aquarium management.

Among the special groups that visited the Aquarium during the year were the Municipal Club of Brooklyn, the Oyster Institute of North America and the 53rd Annual Convention of the National Audubon Society.

Exhibitions. Because of the complete change of emphasis in our exhibits, from freshwater to marine, we were faced with the problem of stocking our new Aquarium virtually from scratch. Actually, the task was not as formidable as it might have been, for we had been making plans and establishing connections to this end for a good many years. The only living marine animals that are available commercially are some small, brightly colored tropical fishes. We therefore had to depend on our own collectors or those connected with sister institutions. Both met all our expectations.

Under the leadership of Superintendent Olsen three major collecting trips were made to Key West, Florida, in January, April and December. Unfavorable weather hampered our activities on all three occasions, but we nevertheless obtained satisfactory collections of saltwater fishes and invertebrates, mostly through our own efforts but in part by purchase from various marine exhibition places in Florida. These trips were of great significance to us in that they tested the performance of our specially outfitted truck and demonstrated the feasibility of trucking large numbers of tropical marine fishes long distances even in winter weather. In addition to the groupers, snappers, grunts, butterfly and angel fishes, demoiselles, wrasses and plectognaths (trigger fishes, puffers and their allies)

that comprise the backbone of Florida's marine fauna suitable for exhibition in aquaria, unusual specimens such as a large Nurse Shark, four Tarpon and a Great Barracuda were taken. Mr. Victor A. Lang of the Key West Municipal Aquarium and Mr. C. E. Nickerson of the U. S. Fish and Wildlife Service have been of great help in our Florida activities.

Two collecting trips were made to the British West Indies, in April by Dr. Nigrelli and our laboratory technician, Mrs. Idelisa Bonnelly Calventi, and in May by Dr. Nigrelli and Mr. Ray. Through the good offices of Dr. Charles M. Breder, Jr., Director, the facilities of the Lerner Marine Laboratory of the American Museum of Natural History on the island of Bimini were put at our disposal, making it possible for us to assemble many fine Squirrel Fish, wrasses, large Nassau Groupers, trigger fishes and other plectognaths, as well as a variety of smaller fishes and invertebrates.

Shortly before opening day Tankman John Blair returned from Bermuda with an outstanding group of fishes and invertebrates that had been collected for us by Mr. Louis Mowbray, Curator of the Bermuda Aquarium. Among them were three species of parrot fishes, some of considerable size, several kinds of spectacularly colored marine basses and wrasses, surgeon fishes and four specimens of the rare Reddish Frogfish. Two octopuses headed the list of invertebrates. Mr. Mowbray also returned to us two Ridley Turtles, specimens that had been given to the Bermuda Aquarium by the Zoological Society in 1941 when the Aquarium at the Battery was closed.

The final touches to our opening exhibits were added by an assortment of strikingly beautiful Hawaiian coral reef fishes collected and air-shipped to us by Mr. Vernon Brock, Director of the Division of Fish and Game of the islands. Present were five species of butterfly fishes, three of tangs, four of wrasses, a trigger fish, scorpion fish and squirrel fish, a White-lined Hawkfish, Jeweled Boxfish, some Stripeys, White-spotted Pullers, Fan-tailed Filefish and Spotted Caracanthus—the finest exhibit of Hawaiian fishes that we have ever had. We are also indebted to Dr. Earl S. Herald, Curator, and the Steinhart Aquarium, whose servicing of the shipment *en route* was vital to its success.

In July and October, Assistant to the Director Ray collected exhibition fishes and invertebrates in Bermuda. On both occasions he received invaluable assistance from Mr. Mowbray of the Bermuda Aquarium and Dr. Henry Clay Frick of our Board of Trustees. Certain species can only be caught by methods involving diving, and Mr. Ray used this technique in addition to the more widely applicable procedures of trapping, seining and angling. Dr. Frick,

who is also an experienced diver and possesses extensive knowledge of underwater conditions around Bermuda, was especially helpful in these operations. Four large Green Morays, a number of wrasses, parrot fishes and sea basses were featured among the fishes, while octopuses and two species of squid were the most noteworthy invertebrates. That the latter could be transported successfully to New York gives us hope that some day we shall be able to exhibit these creatures regularly. Dr. Frick provided us with several Palometa acclimated to captivity in his own pools, while Mr. Mowbray donated two Reddish Frogfish and other unusual specimens. In August Dr. Frick and Mr. Mowbray made arrangements to have shipped to us two Spotted Eagle Rays, a spectacular form seldom seen in northern aquariums.

The number of species of fishes available from local waters does not approach its maximum until August and September, and by that time we had made arrangements with commercial fishermen of the metropolitan area to avail ourselves of any exhibition-worthy specimens turning up in their nets. In this way we obtained for exhibition two Sand Sharks, a few Smooth Dogfish, a Monkfish, an Eagle Ray, several Clear-nosed Skates, a large Short-nosed Sturgeon, two Threadfins, a small school of jacks and a number of less noteworthy species. These operations were made possible by Dr. Alfred Perlmutter of the Bureau of Marine Fisheries of the State of New York Conservation Department, Mr. Bert Maxon of Belford, New Jersey, Sciabarra Brothers of Gerritson Creek, Brooklyn, and the Sunrise Fish Company of East Islip, Long Island. We also fished local waters ourselves —by seining or skin-diving—for smaller specimens such as pipefish, seahorses, Cornet Fish and Toadfish and the young of the Common Mullet, Lookdown, Stargazer and Puffer. Local skin-diving enthusiasts donated a number of similar specimens. Mr. Joseph Mintzer was preeminent in this, and Mr. Theodore Kazimiroff, Jr., provided us with a tankful of Spiny Boxfish at the time of their first appearance around New York.

Gifts of fishes from other public aquariums and from private aquarists must be gratefully acknowledged. From the Steinhart Aquarium we received three shipments of Leopard Sharks and Hawaiian morays of two species, and from Marineland of the Pacific a shipment of Garibaldis. Mrs. Helen Simkatis presented a group of Hawaiian fishes *viz.*, a Stripey, a trigger fish and three scorpion fishes, including the Dwarf Pterois. Mr. Herbert Axelrod donated a specimen of the lovely *Monodactylus sebae*. Through the courtesy of Mr. Walter H. Chute, Director of the Shedd Aquarium, we received living specimens of *Glaridichthys uninotatus,* a small live-

bearing top-minnow, in order to establish and study the strain in our Genetics Laboratory.

Whenever feasible we have used regular commercial channels as a source of marine fishes and invertebrates. These are usually quite limited, but a remarkable exception was Mr. Ross B. Socolof who made a special effort to obtain Philippine marine fishes for us. Some of these were the Golden-striped Bass, three species of sweetlip, a sea-bat, the Moorish Idol, the Coachman, four species of puller, eight species of clownfishes, the Blue-fin Damsel Fish, Painted Green Wrasse, Ocellated Toby, Stonefish and Yellow Fishing-frog. Twice we exhibited one of the large species of anemone from the Philippines that regularly provide shelter for various clownfishes, and the association of fish and invertebrate proved of great interest to our visitors.

Although we have subordinated our freshwater exhibits for reasons of space, we exhibited a few freshwater fishes of special interest, *viz.*, a large albino lungfish from the Belgian Congo, a good-sized Mottled Snakehead and a few piranhas and Elongate Lobefins. From Dr. Walter Van den bergh, Director of the Royal Zoological Society of Antwerp, we received four Congolese Blind Cave Barbs.

The feature exhibit of our Oceanic Tank has been our young male Atlantic Walrus whose friendly disposition and natural drollery have endeared him to press and public. On two occasions we attempted to maintain Northern Elephant Seals in the same enclosure but the effect on the walrus of even a single small, immature male was so blighting that we were forced to remove these potentially spectacular creatures. In contrast, the walrus gets along very well with the five sub-adult California Sea Lions that have been kept with him since a few days before the opening of the Aquarium. Also sharing the tank for most of the season were two Harbor Seals.

One of our two garden pools was occupied by a colony of Humboldt Penguins, the other by four species of marine turtles. In early October we briefly exhibited a 635-pound specimen of the fifth species, the rare Leatherback Turtle, but it was so injured by the Maine fishermen who had caught it that it did not long survive. With the onset of cold weather, we replaced the turtles with two Harbor Seals. The Bermuda Aquarium generously agreed to board the turtles for us until it is again warm enough to exhibit them out-of-doors.

Research. Holothurin, the substance with antitumorous properties that Dr. Nigrelli first extracted from a West Indian sea cucumber, provides a focal point for the activities of the new Department of Marine Biochemistry and Ecology. The analysis of this complex chemical is proceeding under the direction of Drs. Harry Sobotka and J. D. Chanley of Mount Sinai Hospital and Dr. Nigrelli. The extreme

toxicity of Holothurin, its ability to prolong the life of mice inoculated with tumor cells, as well as its peculiar chemical nature (it belongs to a group of substances once thought to occur only in plants), make it of unusual interest to pharmacologist, oncologist and biochemist alike. This work was supported by a grant of $5,900 from the Damon Runyon Memorial Fund and one of $5,175 from the Office of Naval Research.

During their two-week stay at the Lerner Marine Laboratory, Dr. Nigrelli and Technician Idelisa Calventi collected nearly a pound and a half of crude Holothurin for chemical and biological studies. In the course of the routine testing of sponge extracts for antibiotic activity, it was noticed that some had become contaminated by a mold which had converted the extract into a steroid-like compound. The biochemical synthesis of pharmacologically active compounds, such as steroids, by means of microorganisms is becoming increasingly important, and we are attempting to identify the mold in question.

At our Genetics Laboratory, located in the American Museum of Natural History, Dr. Gordon has formulated a hypothesis to explain the origin of the heritable melanomas that appear in certain hybrid fishes systematically bred there. He conceives of this cancerous growth as the result of some gene-controlled process that interferes with the maturation of pigment cells. Dr. Gordon has also suggested that a genetic deficiency in the pituitary hormone ACTH may be fundamentally involved. These ideas were favorably received in scientific meetings held at Stanford, Chicago and Houston. Dr. Gordon explored the evolutionary aspects of the problem in a paper entitled "A Genetic Concept for the Origin of Melanoma" which was contributed to the symposium on genetics and cancer held by the New York Academy of Sciences.

The National Cancer Institute, National Institutes of Health of the U. S. Public Health Service, supported the work of the Genetics Laboratory with a grant of $15,700.

A study of the chemical and physical characteristics of the cells that form the melanoma is obviously of fundamental importance, and this was undertaken a few years ago by Drs. M. J. Kopac, Sylvia S. Greenberg and Gordon. Dr. Greenberg has recently been reappointed Damon Runyon Memorial Fellow to continue this work.

The discovery by Mr. Klaus D. Kallman that fins can be successfully transplanted among the members of the highly inbred strains of platyfish, developed in the Genetics Laboratory, has opened a whole new field of investigation. Previous to this, the only successful transplants that had ever been made in fishes were those in which a fin was moved from one place to another on a single fish's body. Not

only does Mr. Kallman's relatively simple technique provide a new way to study the development and movement of pigment cells, but it offers an excellent method of determining, and perhaps actually measuring, genetic relationships.

A study of the origin of the thyroid tumors that occur in the kidneys of certain strains of fishes in the Genetics Laboratory was substantially advanced by Miss K. France Baker, for which she received her doctorate at Columbia University. In a complementary study, Dr. Nezihe Öztan of the University of Istanbul, who is at present on leave in order to work at the Genetics Laboratory, is investigating the relation of the pituitary gland to the development of these and other thyroid tumors in our platyfishes and swordtails.

In January, Dr. Gordon and Donn E. Rosen of the Genetics Laboratory and Malcolm S. Gordon of Yale University made a highly successful two-week trip to northeastern Mexico where they collected seven species and subspecies of platyfishes and swordtails. Six were brought back alive for breeding experiments in the Laboratory. This completed our collection of known forms belonging to the Genus *Xiphophorus*, and with these specimens in hand it was possible virtually to finish the taxonomic revision of the group. Mr. Rosen is now proceeding with his analysis of the systematic and evolutionary relationships of all the members of the Family Poeciliidae, of which *Xiphophorus* forms but one small part. For this purpose we now have in the Genetics Laboratory what is by far the most complete collection of museum specimens of poeciliid fishes ever assembled—with, at most, only one or two of the 150 or so known species being absent. These investigations were supported by a grant from the National Science Foundation.

In conjunction with these analyses, as well as the ones concerned with the production of melanoma, Associate Curator Atz is investigating the genetics and morphology of inter-specific hybrids produced in the Genetics Laboratory. Of the 15 possible hybrid combinations involving the six species of platyfishes and swordtails, 12 have been successfully made and they provide an extraordinary opportunity to study hybridization under controlled conditions.

Collaboration between Director Coates and Dr. David Nachmansohn and his associates at Columbia University has continued. Their studies on the Electric Eel and other fishes have contributed substantially to our understanding of how bioelectric potentials are generated. During the past year, Dr. Ernest Schoffeniels greatly improved his technique of isolating a single electroplax from the electric organ. This is the first preparation in which ion movement across a conducting and a non-conducting membrane can be directly ob-

served. It has been used to investigate the effects of drugs and antimetabolites on these vital processes. Dr. Seymour Ehrenpreis initiated a program to analyze the proteins of electric tissue with the hope of isolating the receptor-protein, an essential element in the process of generating electricity. Dr. F. C. G. Hoskin studied the intermediary metabolism of electric tissue.

In a large public aquarium, opportunities for studying the diseases and causes of death of aquatic animals are, unfortunately, endless. Nowhere else in the world does such a variety of aquatic organisms exist under so many different environments. Chance alone dictates that sooner or later the Aquarium's pathologist will be confronted with abnormal conditions previously unknown to him, or even to science. During twenty years as Pathologist at the Aquarium, Dr. Nigrelli has not infrequently discovered new causes of disease in fishes. Most recently it was found that an as yet unidentified slime-mold was responsible for the death of one of our freshwater gars. Another highly unusual situation was the presence of growing green algae in the skin, skull and nose of a Kissing Gourami. This was associated with a localized destruction of tissue and an anemia. Dr. Nigrelli and Dr. John J. A. McLaughlin of the Haskins Laboratories were able to culture the one-celled plant outside the body of the fish and subsequently to reproduce the condition experimentally by injecting some of the culture under the skin of another gourami.

Of all the parasites that we have to deal with in our new building, *Oodinium* has proved the most troublesome; on occasion infestations of this tiny gill parasite assumed epidemic proportions. Copper is the most effective treatment and preventative, and Dr. Nigrelli has been testing various organic and inorganic copper compounds to determine which is the most destructive to the parasite without being injurious to the fish. The physico-chemical clarifying effect that some of these compounds have on bacterial and other suspensions in aquarium water is also being tested.

Dr. Sophie Jakowska, who in the course of ten years of close association with our Laboratory has become one of our most valued collaborators, has undertaken a comparison of the biochemical constituents of sera and tissues of fish in health and disease, using electrophoresis and paper chromatography as her principal analytic tools. Similar techniques are also being employed to determine the substances dissolved and suspended in our aquaria in order to understand the so-called conditioning of water.

Assistant to the Director Ray is completing an extensive study of the relationship between the temperature at which cold-blooded animals live and their rate of growth and the size they attain. The

animals studied include reptiles, amphibians, fishes, insects and aquatic invertebrates. Mr. Ray is also preparing for publication an analysis of the influence of temperature and glaciation on the evolution of an Alaskan toad.

Collaboration. It would be an exaggeration, as well as a cliché, to say that the new Aquarium has become a Mecca for professional aquarists and public administrators, but the number of visitors we have had from all parts of the world—most of them looking for advice on the planning and operation of public aquariums—has sometimes made us feel uncomfortably like a prophet. Among the municipalities whose authorities consulted us during the year on the design of aquariums or oceanariums they are planning to build are Sapparo, Surabaja, Haifa, Monaco, Pretoria, Caracas, Quebec, Philadelphia and Atlantic City. Director Coates spent several days in Detroit and spoke to the Planning Commission there in connection with the plans for a large marine aquarium the city is contemplating. Information on the installation of circulating water systems was provided for the Rockefeller Institute and Purdue University. Fish belonging to some of the special strains maintained in our Genetics Laboratory were sent to The Johns Hopkins University School of Medicine, the University of Texas and a research group of the U. S. Fish and Wildlife Service, stationed at Stanford University.

As in the past, we have maintained close cooperation with the Department of Marine and Aviation, New York City; the Federal Security Agency, Pure Food and Drug Administration; the Department of Health, New York City; the Fish and Wildlife Service. Department of the Interior; and the Conservation Department, State of New York.

Collaborators working with the Aquarium during the year were:

Dr. Sophie Jakowska, College of Mount St. Vincent, New York.

Drs. David Nachmansohn, Irwin B. Wilson, Seymour Ehrenpreis and Francis C. G. Hoskin, Department of Neurology, College of Physicians and Surgeons, Columbia University.

Dr. Ernest Schoffeniels, University of Liège and Department of Neurology, College of Physicians and Surgeons, Columbia University.

Drs. Harry A. Charipper and Milan J. Kopac, New York University.

Dr. Aubrey Gorbman, Barnard College, Columbia University.

Miss Francesca R. LaMonte, Drs. Charles M. Breder, Jr., Lester R. Aronson, T. C. Schneirla, Horace W. Stunkard and Arlene F. Tucker, American Museum of Natural History.

Drs. Daniel Merriman and Grace E. Pickford, Bingham Oceanographic Laboratory, Yale University.

Drs. Caryl P. Haskins, Seymour Hutner, Paul A. Zahl, Luigi Provasoli and John J. A. McLaughlin, Haskins Laboratories, New York.

Drs. Harry Sobotka, J. D. Chanley and Herman Baker, Department of Chemistry, Mount Sinai Hospital, New York.

Dr. Alfred Perlmutter, Bureau of Marine Fisheries, State of New York Conservation Department.
Dr. Arnold H. Sparrow, Brookhaven National Laboratory.
Dr. Douglas G. Humm, University of North Carolina.
Dr. Sylvia Greenberg, Damon Runyon Memorial Fellow, New York University.
Dr. Helen Vishniac, Yale University.
Dr. K. France Baker Cohen, Department of Biochemistry, College of Physicians and Surgeons, Columbia University.
Dr. Nezihe Öztan, University of Istanbul.
Dr. F. N. Ghadially, University of Sheffield.
Dr. Reeve M. Bailey, Museum of Zoology, University of Michigan.
Dr. Olga Berg, University of Rochester School of Medicine.
Dr. Walter Chavin, Wayne State University.
Morton Padnos, Waldemar Medical Research Institute, Port Washington.
Hugh Gordon, Columbia University.
Dr. Marvin Weinstein, Schering Corp., Bloomfield, New Jersey.
Steven Carson, Endo Pharmaceutical Company, New York.
Dr. Patricia Kadow, College of St. Elizabeth, Morristown, New Jersey.
Dr. T. D. Sullivan, S.S.E., St. Michael's College, Winooski, Vermont.

Drs. Nigrelli and Gordon conducted courses on fish diseases and fish genetics, respectively, at the Graduate School of Arts and Sciences of New York University. Marvin Weinstein received the degree of Doctor of Philosophy under Dr. Nigrelli's sponsorship. Dr. Gordon acted as one of K. France Baker's faculty advisors for the PhD degree that she received from Columbia University.

Publications. The following scientific and popular articles by members of the staff appeared during the year:

Mr. Coates

They Kill for Fun. *American Mercury,* Vol. 84, No. 397, pp. 99-101.

Cuttlefish. *Encyclopedia Americana,* Vol. 8, p. 344.

Fish, Tropical. *Encyclopedia Americana,* Vol. 11, pp. 275-277.

Gar. *Encyclopedia Americana,* Vol. 12, p. 277.

Globefish. *Encyclopedia Americana,* Vol. 12, p. 718.

Menhaden. *Encyclopedia Americana,* Vol. 18, p. 629.

Pilot-fish. *Encyclopedia Americana,* Vol. 22, p. 89.

Salmon. *Encyclopedia Americana,* Vol. 24, p. 191.

Effect of Potassium on Electroplax of Electrophorus electricus. With Mario Altamirano. *Journ. Cell. and Comp. Physiol.,* Vol. 49, No. 1, pp. 69-101.

A Remarkable Instance of Parallelism among Teleost Fishes. With James W. Atz. *Copeia,* Vol. 1957, No. 4, pp. 302-303.

Weekly column on tropical fish in the *New York World-Telegram and Sun* continued for twenty-seventh year.

Mr. Atz

In Some Ways Lungfish Are a Missing Link. *Aquarium Journ.,* Vol. 28, No. 3, pp. 87-91; No. 4, pp. 134-137, 148.

The Relation of the Pituitary to Reproduction in Fishes. Pg. 178-270 and 372-482 of "The Physiology of the Pituitary Gland of Fishes," by Grace E. Pickford and James W. Atz. N. Y. Zoological Society, N. Y.

How to Confuse an Ichthyologist. *Animal Kingdom*, Vol. 60, No. 4, pp. 114-116. *Aquarium Journ.*, Vol. 28, No. 12, pp. 423-425.

Common but Unfamiliar—Lookdowns at the Aquarium Again. *Animal Kingdom*, Vol. 60, No. 5, pp. 136-137.

New York's New Aquarium. *Aquarium Journ.*, Vol. 28, No. 10, pp. 347-351. *Aquarist and Pondkeeper*, Vol. 22, No. 7, pp. 154-156.

The Peregrinating Tilapia. *Aquarist and Pondkeeper*, Vol. 22, No. 9, pp. 191-197.

"Guide and Historical Souvenir of Stage One of the New York Aquarium." With William Bridges and Dorothy Reville. N. Y. Zoological Society, N. Y. 64 pp.

MR. RAY

Fish-watching, New Under-water Sport of the Seas. *Audubon Mag.*, Vol. 59, No. 6, pp. 258-263.

The Relation of Oxygen Consumption to Temperature in some Tropical, Temperate and Boreal Anuran Amphibians. With Richard E. Tashian. *Zoologica*, Vol. 42, Pt. 2, pp. 63-68.

DR. NIGRELLI

Some Diseases of Small Tropical Fishes. *Fish Culturist*, Vol. 36, No. 5, pp. 34-35.

A Bacterial Disease of Cichlids in Captivity. With Sophie Jakowska and Herman Baker. *The Aquarium*, Vol. 26, No. 7, pp. 233-235.

The Ability of the Saprolegniaceae to Parasitize Platyfish. With Helen S. Vishniac. *Zoologica*, Vol. 42, Pt. 4, pp. 131-134.

Dutchman's Baccy Juice or Growth-Promoting and Inhibiting Substances from the Sea. Announcement of 140th Annual Dinner and Meeting of the N. Y. Academy of Sciences. No pagination. Abstract.

Studies of Colpoda. VII. Acceleration of the Aging Process in Corrugated Cysts of Colpoda maupase (Bensonhurst Strain) after X-irradiation. With Morton Padnos and Sophie Jakowska. *Radiation Res.*, Vol. 5, No. 5, p. 610. Abstract. (1956).

Hyperplasia of the Perihepatic Granulocytopoietic Tissue in Hepatectomized Newts. With Jacqueline L. Pratt and Sophie Jakowska. *Anat. Rec.*, Vol. 128, No. 3, p. 603. Abstract.

Effects of Holothurin on Survival and Regeneration of Planarians. With Nannette D. Quaglio, Stephanie F. Nolan, Agatha M. Veltri, Patricia M. Murray and Sophie Jakowska. *Anat. Rec.*, Vol. 128, No. 3, pp. 604-605. Abstract.

DR. GORDON

Otra Vez, Con las Mollies del Lago Peten. *Acuario* [Havana], Vol. 2, No. 5, pp. 117-118, 121-122. (1956).

Platyfish Reunion—after 30,000 Years. *Aquarist and Pondkeeper*, Vol. 21, No. 10, pp. 210-215.

Reunion After 300,000 Years. *Tropical Fish Hobbyist*, Vol. 5, No. 3, pp. 58-63.

Schizophrenia, Tranquilizers and Aquarium Fishes. *Tropical Fish Hobbyist*, Vol. 5, No. 4, pp. 18-28.

Search for the Pygmy Swordtail. *Aquarium Journ.*, Vol. 28, No. 5, pp. 163-172, No. 6, pp. 208-215.

Rasbora heteromorpha Round-up. *Tropical Fish Hobbyist,* Vol. 5, No. 5, pp. 70-78.

Horsehair Worms, Gordian Knots—and Aquarium Fishes. *Aquarist and Pondkeeper,* Vol. 22, No. 4, pp. 83-84. *The Aquarium,* Vol. 26, No. 8, pp. 254-256.

The Drifting Leaf that Is a Fish. *Animal Kingdom,* Vol. 60, No. 5, pp. 151-154.

Make Guppies More Colorful. *Tropical Fish Hobbyist,* Vol. 6, No. 1, pp. 6-10, 25-33.

The Number of Guppies in an Aquarium. *The Aquarium,* Vol. 26, No. 11, pp. 352-356.

Physiological Genetics of Fishes. Pp. 431-501 of Vol. II of "The Physiology of Fishes," edited by Margaret E. Brown. Academic Press, N. Y.

The Surprising Story of Hitch-hiking Discus Babies. *Animal Kingdom,* Vol. 60, No. 6, pp. 170-174.

On the Regeneration of Piscine Melanomas. With Recai Ermin. *Proc. XIV Int'l Congress Zool.,* Copenhagen 1953, p. 236. (1956).

Maintenance of Polymorphism by Potentially Injurious Genes in Eight Natural Populations of the Platyfish, *Xiphophorus maculatus.* With Hugh Gordon. *Journ. Genetics,* Vol. 55, No. 1, pp. 1-44.

A Localized Melanoma in a Hybrid Fish Lebistes X Mollienesia. With F. N. Ghadially. *Cancer Res.,* Vol. 17, No. 6, pp. 579-599.

Transplantation of Fins in Xiphophorin Fishes. With Klaus D. Kallman. *Ann. N. Y. Acad. Sci.,* Vol. 71, No. 3, pp. 305-320.

The Origin, Development, but Incomplete Differentiation of Pigment Cells in Melanomas. *Proc. Amer. Assoc. Cancer Res.,* Vol. 2, No. 3, p. 207. Abstract.

Response of Tissue-cultured Melanoma Cells to Nucleic Acids. With Sylvia S. Greenberg and M. J. Kopac. *Proc. Amer. Assoc. Cancer Res.,* Vol. 2, No. 3, pp. 208-209. Abstract.

Transplantation of Potentially and Definitive Melanomatous Fins in Hybrid Fishes of Strain *Sd.* With Klaus D. Kallman. *Proc. Amer. Assoc. Cancer Res.,* Vol. 2, No. 3, p. 220. Abstract.

Reactivity of DNA from Xiphophorin Fishes to Aldehyde-coupling Reagents. With Sylvia S. Greenberg and M. J. Kopac. *Anat. Rec.,* Vol. 128, No. 3, pp. 557-558. Abstract.

Personnel. Director Coates was elected to the International Union of Directors of Zoological Gardens. On June10-11 he participated in a closed symposium to further the development of new instruments in biology and medicine by bringing engineers, biologists and medical men together, and on December 9, he addressed a large group of electrical engineers on the subject of biolectricity. On both occasions the electrical properties of the Electric Eel were demonstrated with living fishes. During the year Director Coates appeared on numerous radio and television programs in connection with the opening and operation of the new building. On October 15, Associate Curator Atz began a six-month leave of absence to pursue doctoral research in our Genetics Laboratory at the American Museum of Natural History.

On April 24, Mr. Ray assumed the position of Assistant to the

Director. Mr. Ray was awarded the James Howard McGregor Prize, given each year to the outstanding graduate student in zoology at Columbia University. He was also elected to Sigma Xi, the Scientific Research Society. Mr. Ray made three local deep-water dives with Trustee Peter Gimbel, in part to find a suitable locale to form the prototype for a habitat group of living local fishes and invertebrates.

Dr. Nigrelli was the President of the New York Academy of Sciences for 1957. He was elected to the American Association of Pathologists and Bacteriologists and became one of the charter members of the newly organized American Academy of Microbiology. Dr. Nigrelli was elected Honorary Fellow of the Consular Law Society and reappointed Scientific Consultant in the Bingham Oceanographic Laboratory of Yale University for the academic year 1957-1958. In connection with the tercentenary of the birth of Linnaeus, the Society of Protozoologists is re-assessing the classification of the Protoza, and Dr. Nigrelli has been appointed to the sub-committee concerned with Cnidosporidians, which are important parasites of fish. The Conference on the Development of High School Students Toward Careers in Biology, which was sponsored by the New York Academy of Sciences, was organized by a committee of three of which Dr. Nigrelli was a member. Dr. Gordon was one of the participants in this conference and spoke on "The Use of High School Students as Assistants in Research."

Dr. Gordon organized the Fourth Conference on the Biology of Normal and Atypical Pigment Cell Growth, which was sponsored by the Zoological Society, together with the University of Texas M.D. Anderson Hospital and Tumor Institute and the Damon Runyon Fund for Cancer Research, Inc. The latter provided a grant of $7,000 in support of the Conference, while the meetings were held at the Institute in Houston, Texas, on November 14, 15 and 16. As Organizing Chairman, Dr. Gordon was responsible for the participation of the 52 investigators, four of whom were from England.

Members of the staff gave papers and lecturers and participated in discussions at the following institutions and places:

American Association for Cancer Research, Chicago meeting.

American Society of Zoologists, Stanford meeting.

American Institute of Electrical Engineers and Institute of Radio Engineers, New York meeting.

A Conceptual Clinic for New Instrumentation for Medicine and Biology, The New England Institute for Medical Research and The Foundation for Instrumentation Education and Research, Ridgefield, Conn.

Joint Conference on Melanomas, M. D. Anderson Hospital, University of Oregon Medical School and Stanford University, Stanford, California.

Fourth Conference on the Biology of Normal and Atypical Pigment Cell Growth, Houston.

Aquarium Symposium, American Society of Ichthyologists and Herpetologists, New Orleans.
Conference on Genetic Concepts for the Origin of Cancer, New York Academy of Sciences.
Conference on the Development of High School Students Toward Careers in Biology, New York Academy of Sciences.
Systematics Discussion Group, American Museum of Natural History.
Stamford Museum and Nature Center.
Warwick, New York, Historical Society.
Society of Biology and Medicine, Brooklyn College.
Biology-Medical Society, Queens College.
Staten Island Zoological Society, Monthly Program.
Yale Club of New York.
Kiwanis Club of Bush Terminal.
12:30 Club of Bay Ridge.
Queens County Aquarium Society.
Greater City Aquarium Society.
Brooklyn Aquarium Society.
"Let's Take a Trip," CBS-TV (August 4).
WABC, WNBC, WOR, WINS, WMGM, WTIC (Hartford).

Census of the Aquarium

December 31, 1957

Phylum Chordata

Class Pisces—Fishes

Subclass Teleostomi—Ray-finned Fishes

Orders		*Species*	*Specimens*
Cladista	Lobefins	1	1
Chondrostei	Sturgeons	1	1
Isospondyli	Herring, Salmon, Pikes	2	5
Ostariophysi	Minnows, Characins, Catfishes	8	99
Apodes	Eels and allies	6	14
Cyprinodontes	Top-minnows	6	142
Hemibranchii	Seahorses and allies	2	5
Berycoidei	Squirrel Fishes and allies	1	5
Percesoces	Silversides, Mullets and allies	2	7
Percoidei	Spiny-rayed Fishes	37	174
Labyrinthici	Snakeheads, Gouramis and allies	3	4
Chaetodontoidei	Butterfly Fishes and allies	14	39
Acanthuroidei	Surgeon Fishes and allies	3	3
Chromides	Demoiselles and Cichlids	12	34
Pharyngognathi	Wrasses and Parrot Fishes	9	12
Gobioidei	Gobies and allies	1	4
Cataphracti	Scorpion Fishes and allies	3	7
Plectognathi	Trigger Fishes, Puffers and allies	14	71
Haplodoci	Toadfishes	1	3
Pediculati	Anglers, Batfishes and allies	3	4
Subclass Dipneusti—Lung Fishes		3	8

Class Reptilia—Reptiles			
Chelonia	Turtles and Tortoises	4	12
Class Aves—Birds			
Sphenisciformes	Penguins	1	9
Pelecaniformes	Pelicans and allies	2	5
Class Mammalia—Mammals			
Pinnipedia	Seals, Sealions and Walruses	4	8
Phylum Coelenterata			
Class Anthozoa—Sea Anemones		2	14
Phylum Arthropoda			
Class Crustacea—Lobsters and allies		10	92
Class Arachnida—Horseshoe Crabs and allies		1	1
Phylum Mollusca			
Class Gastropoda—Snails		2	39
Class Pelecypoda—Clams, Oysters and allies		1	24
Phylum Echinodermata			
Class Asteroidea—Starfish		1	12
Class Echinoidea—Sea Urchins		1	1
Class Holothuroidea—Sea Cucumbers		1	1
	Totals	162	860

Summary: Species, 162; Specimens, 860.

DEPARTMENT OF TROPICAL RESEARCH

William Beebe, *Director Emeritus*
Jocelyn Crane, *Assistant Director*
Henry Fleming, *Entomologist*
David W. Snow, *Resident Naturalist*

General Activities. In 1957 two major expeditions were undertaken and completed: the Fifty-seventh, which was the eighth to Simla, Trinidad; and the Fifty-eighth, which followed a course almost completely encircling Africa. Thus, during the year upwards of nine months were devoted to activities in the field.

Changes in Staff. Miss Barbara P. Young acted as Field Assistant during the Trinidad expedition. On March 3 Dr. Snow arrived from Oxford to take up his duties as Resident Naturalist at Simla. His field is ornithology and he will share in the study of the biology of the birds of the Arima Valley.

Fifty-seventh Expedition. We left New York December 12 via the *Alcoa-Partner* and arrived at Simla twenty-two days later. Stops were made at La Guaira, Puerto Cabello, Guanta, Georgetown, Paramaribo and Moengo. The return trip was made on the S.S. *Brazil,* arriving in New York June 24.

Construction and Maintenance. These activities were under the direction of Mr. Fleming. Our three-quarters of a mile of pipe line leading through the jungle from the mountain springs to Simla was completely cleared, eleven pipes replaced and thus, by a major operation, our vital water supply was ensured. The generator and both cars were overhauled. The floors of guest and bath rooms were tiled.

The cottage at St. Pat's was thoroughly renovated, unnecessary partitions taken down and the windows increased in number and screened. A water supply was inaugurated by running 700 feet of pipe from a small dam in the nearby brook. St. Pat's boundaries were rechecked, no illegal lumbering being found.

The expected arrival of government electricity was postponed indefinitely.

Trips. Thirty-five trips were made to various parts of the island by Dr. James A. Oliver, Curator of Reptiles at the Zoological Park, and members of the staff. Among these were trips to the Nariva Swamp, Aripo, Guayaguayari, Mount Tucuche (the highest land in Trinidad) and the Oropouche River.

A week was spent on the Pacific coast of Panama by Jocelyn Crane for further studies of fiddler crabs. She located two areas where fifteen species were observed and photographed, eleven of them being in full display.

Scientific Activities of Staff. Dr. Oliver paid a second visit of a month's duration, studying and collecting snakes and lizards.

Of especial importance was the feat of persuading a young Bushmaster to accept new-born mice.

Miss Crane's work at Simla dealt principally with some special types of social behavior in butterflies. Such activities had been hitherto unknown in Lepidoptera and only rarely suspected in invertebrates. It became clear that the heliconiid butterflies not only have surprisingly complex normal courtships but also spend a great deal of their time courting inappropriate individuals. The latter, because of age or other factors, prove unresponsive to the colorful and fragrant chases and fannings characteristic of the species. On these occasions, a thwarted male's regular pattern breaks down into a number of kinds of inappropriate actions—irregular flutterings, make-believe feeding motions and the like—in a sequence which is not only of great interest in itself but which seems to give clues to the evolution of butterfly behavior.

In any region the accumulation of breeding data is a prerequisite to a general study of bird ecology and behavior. Since the life histories of few tropical birds are well known, these basic observations are particularly important at Simla. Accordingly, Dr. Snow has been gathering nesting records in the Arima Valley and other parts of the island. His special concern has been with manakins, hummingbirds and oilbirds or Guacharos.

He continued the observation of manakin displays begun during 1956 and embarked on ciné-photography which will help in the analysis of very quick display movements. For this purpose three blinds were erected at the display grounds of the Black-and-White Manakins and one near the display area of the Gold-headed Manakins. Many nests have been found but only three contained eggs.

The forest streams along which the manakins nest provide sites for three species of hummingbirds. A preliminary study was made of the Hairy Hermit, the commonest species. It spends 14 days on nest-building, has an incubation period of about 17 days and a fledgling period of about 20, so that a nesting cycle takes about 50 days. It is at least double-brooded.

When the Guacharo cave at the head of Arima Valley was first visited on March 24 the nesting period had just begun. After that the cave was visited regularly, and at the end of the year there were

ten pairs breeding, the total population being about 25 birds. A device was rigged for catching the nuts which the birds drop on the nest ledges. The fruit of the palm, *Jessenia oligocarpa,* was the most numerous. To reach these palms it is estimated that the birds must fly about six miles.

A comparison of the non-morphological characteristics of Singapore, Trinidad and Long Island birds and the biology of Arima birds remained Dr. Beebe's chief preoccupations during 1957. Progress in such research is a fact-by-fact accretion, together with the assigning of these facts to categories such as convergences and parallelisms. The investigator is constantly faced with the desire to penetrate the cause for change of function and the corresponding psychological or physical pattern. A book relating to the Simla Station is under way.

Relation with Other Institutions and Conservation. Continuing our association with Dr. Wilbur G. Downs and the Trinidad Regional Virus Laboratory, Dr. Snow acted as ornithological consultant, to the mutual advantage of both institutions.

Because of strict protection of the wild life in the forests of the American Naval Base, animal life is increasing, especially Howling Monkeys and Pacas. A pair of Ocelots was seen.

The conservation news from British Guiana is less favorable. Thousands of Morpho butterflies are being caught and their wings used for lining trays and other objects. The law forbidding the caging of wild birds is almost altogether unenforced.

Visitors. We welcomed a numerous and interesting lot of visitors. Among them were Mr. James Peabody, Mr. and Mrs. Blair Coursen, Mrs. W. Senior-White, Dr. and Mrs. Alfred Gross, Mr. Fred Bilhardt, Dr. E. A. J. Duffy of the British Museum, Mr. and Mrs. Walter G. Merritt, Mr. and Mrs. Walt Disney, Mrs. H. Meijer, Miss Joan van Orden, Captain Charles Firth, Admiral and Mrs. Hartung, Dr. and Mrs. Victor Quesnel, Miss Ivy Le Mon of the Massachusetts Audubon Society, Consul General H. S. Strutman and Mr. Paul Winkel of Uganda. On March 30 arrived our close friends Mr. Redfield Vose, one of the Zoological Society's Patrons, and Miss Polly Evans, who flew down from the Virgin Islands and spent several days with us. Three months later we read of their deaths in Alaska in a plane crash.

Fifty-eighth Expedition. This was a field trip to Africa, the fourth scheduled under Miss Crane's grant from the National Science Foundation for a world-wide study of ocypodid crabs. The African circuit extended from July 24 to October 12, and was completed entirely by air. Field work was conducted at Massawa in Eritrea; the Zanzibar area, including Pemba and Dar-es-Salaam; Inhaca Island, off Lourenço Marques in Mozambique; Luanda in Angola; and Lagos, Nigeria.

In the course of the trip Miss Crane encountered the great majority of all genera and species in the family that have been recorded from Africa. Each of the eight species of the genus *Uca* was displaying in at least part of its range. Valuable data were assembled on the seasonal development of territory and combat, the relations between courtship and threat behavior, displacement activities, the origin of display itself and the persistence of species-typical display patterns in widely distributed species.

Grants and Gifts. A three-year grant for a study of the Biology of Tropical Birds was allotted to Dr. Beebe and Dr. Snow by the National Science Foundation. The third year of Miss Crane's grant from the same organization resulted in the trips to Panama and Africa. A portion of the grant received by the Department in 1956 from the National Geographic Society provided laboratory assistance in the butterfly studies at Simla.

The Alcoa Steamship Company continued its generous cooperation in the field of transportation. A gift from Mrs. C. Reid Carey made possible the purchase of special apparatus needed for physiological work during the 1958 season.

Contributions, 1957

972. Keeping House for Tropical Butterflies. Jocelyn Crane. *National Geographic Magazine,* August, pp. 193-217.

973. On the Bramid Fishes of the Gulf of Mexico. Giles W. Mead. *Zoologica,* Vol. 42, No. 4, pp. 51-61.

974. The Relation of Oxygen Consumption to Temperature in Some Tropical and Boreal Anuran Amphibians. Richard E. Tashian & Carlton Ray. *Zoologica,* Vol. 42, No. 5, pp. 63-68.

975. Basic Patterns of Display in Fiddler Crabs (Ocypodidae, Genus *Uca*). Jocelyn Crane. *Zoologica,* Vol. 42, No. 6, pp. 69-82.

976. A Few Turbellarians from Trinidad and the Canal Zone, with Corrective Remarks. Libbie H. Hyman. *American Museum Novitates,* No. 1862, pp. 1-8.

977. Nesting Behavior of the Crested Oropendola (*Psarocolius decumanus*) in Northern Trinidad, B. W. I. Richard E. Tashian. *Zoologica,* Vol. 42, No. 8, pp. 87-98.

978. The Ctenuchidae (Moths) of Trinidad, B. W. I. Part I. Euchromiinae. Henry Fleming. *Zoologica,* Vol. 42, No. 10, pp. 105-129.

979. Imaginal Behavior in Butterflies of the Family Heliconiidae: Changing Social Patterns and Irrelevant Actions. Jocelyn Crane. *Zoologica,* Vol. 42, No. 12, pp. 135-145.

980. Habits, Palatability and Mimicry in Thirteen Ctenuchid Moth Species from Trinidad, B. W. I. William Beebe & Rosemary Kenedy. *Zoologica,* Vol. 42, No. 13, pp. 147-157.

981. Annual Report of the Department of Tropical Research for 1956. William Beebe. pp. 49-52.

MEMBERSHIP

GORDON CUYLER, *Membership Secretary*
VILMA CHRISTIAN, *Membership Supervisor*
DOROTHY MORESCHI, *Membership Clerk*

IT IS HIGHLY SATISFACTORY to report a net gain of 183 Members during the past year, bringing our Membership total to 3,460. Because, inevitably, many Memberships are dropped because of death, removal from the City and other reasons, the Society must enroll about 250 new Members a year to stay even and more than that to show progress. Actually, 429 new Members joined the Society during the year, and it is also encouraging to report that 175 Members transferred their status from Annual to Contributing. Membership income was $51,586.50, topping 1956's record sum by a comfortable margin.

An innovation in our Membership activities—Curator-conducted Members' tours on Saturday mornings in the spring and fall—proved to be unexpectedly popular, over 600 persons participating in these pleasant occasions. Activities of this kind, plus the annual Zoo Garden Party and mid-winter meeting, are invaluable in helping the Members and the Staff to know each other better. A newsletter mailed from South Africa by George and Jeanie Treichel provided a good opportunity to keep Members posted on this far-reaching expedition. With so many Society activities abroad, it is hoped that at least one newsletter can be mailed each year.

An active Membership promotion campaign was sustained throughout the year, aided materially by Members and friends who suggested names of people who might join our ranks. A compact, informative pamphlet about the Society's role in the Zoo and Aquarium was published and distributed widely; and another brochure, about the Society's research activities, mailed to Doctors of Medicine and other professional members of the New York community, produced good results in creating new Members and friends of the Society.

THE CONSERVATION FOUNDATION

The 1957 Annual Report of The Conservation Foundation, the affiliate of the New York Zoological Society in conservation work, may be had upon request from the Foundation's offices at 30 East 40th Street, New York 16, N. Y.

JACKSON HOLE BIOLOGICAL RESEARCH STATION

Sponsored by the New York Zoological Society
and the University of Wyoming
L. Floyd Clarke, *Director*

Development of the research program at the Research Station as well as improvement of the physical facilities at the plant and the strengthening of relations with the Park Service resulted in a most successful summer in 1957.

Research Projects. Workers at the Station and the projects carried out during the summer of 1957 were:

Margaret Altmann—Social Behavior Patterns in Moose of Wyoming. This was a continuation of a larger research program on the study of comparative behavior of ungulates. Supported by the National Science Foundation.

Kenneth B. Armitage—Ecology and Behavior of the Yellow-bellied Marmot. The summer's work completed one of the major aspects of this particular study and the results will be published soon. Supported by the New York Zoological Society.

George T. Baxter and L. Floyd Clarke—Effects of Sewage Effluent on the Ecology of Swan Lake. This study, initiated in 1954, showed the general effects of spread of nutrient material throughout the lake as a result of overload of raw sewage from the Colter Bay sewage disposal plant. Supported by the University of Wyoming.

Alan Beetle—Sagebrush-Grass Competition. The second year of a five-year project. Part of this study is being used in a master's thesis by Joel Verner. Supported by Wyoming Agricultural Experiment Station through Interregional Research Program.

Alan Beetle and collaborators—Factors Affecting the Ecology of the Teton National Forest. Shows the effects of grazing pressure on the plant communities in the area. Supported by Wyoming Natural Resources Board through Wyoming Agricultural Experiment Station.

Ralph F. Honess—Ecology of Helminth Worms in Cattle and Moose. This and related projects on parasites have considerable significance for both domestic and wild ungulates in the area. Supported by the Wyoming Agricultural Experiment Station through Interregional Research Program.

Kenneth R. John—Population Dynamics of the Utah Chub, *Gila atraria,* in Two Ocean Lake. Considerable emphasis was given to trying to determine whether or not the deformities in the Utah chub were due to genetic or non-genetic factors. The results are still inconclusive. Supported by the National Science Foundation.

Garth Kennington—Metabolic Differences Associated with Altitude. A study which promises to furnish considerable information on the ways in which animals adapt to high altitude. Project is to be continued next year. Supported by the New York Zoological Society.

W. F. Mai—Environment in Relation to Numbers, Kinds and Morphology of Soil- and Root-inhabiting Nematodes. The first study made on this particular group of animals in the area. It relates to the great importance of both free-living and parasitic nematodes on a variety of plant species. Supported by the New York Zoological Society.

Norman C. Negus—Life History of *Microtus richardsoni macropus.*

Gerald and Coral Scherba—Ecology of Ants in Jackson Hole, Wyoming. This is a continuation of a study initiated in 1955. The emphasis last summer was given to a very large population of ants found on Moose Island. Supported by the American Academy of Arts and Sciences.

Dixie R. Smith—An Evaluation of Certain Exclosures. The effect of grazing on plant species and their distribution was the purpose of this intensive study, which is being used in a Ph.D. dissertation in Range Management at the University of Wyoming. Supported by the Wyoming Natural Resources Board through the Agricultural Experiment Station.

W. G. Solheim—Swan Lake Research and Flora of Jackson Hole. Collection and identification of various plants in the area was continued on a fairly intensive basis. Supported by the University of Wyoming and the New York Zoological Society.

Charles S. Thornton—Influence of Nerves on the Regeneration and Regression of Limbs in Amphibia. The results promise significant information on the whole problem of regeneration in vertebrates. Supported by the National Science Foundation.

The continuation of many of these projects and the initiation of others in the summer of 1958 is assured. Many of these studies are of direct interest to the Grand Teton National Park and the Forest Service. The Park Service cooperated effectively with the research workers. Many eminent biologists visited the Station during the summer and consulted with research workers.

Seminars. Seminars were held each Tuesday evening at the home of the director. They were very well attended by Research Station personnel, Park Service employees and other biologists who happened to be in the area at the time. The number of biologists attending varied from 25-40. Each seminar was followed by an informal period of discussion and refreshments.

Library. Books and journals are readily available to Station personnel. Some new books have been acquired and all subscriptions to periodicals continued. Current periodicals are placed in the laboratory for examination before being placed in the stacks. Reprints con-

tinue to come in from research workers. A number of significant publications have appeared during the last year on research done at the Station.

Joint Meetings with Park Service Personnel. Three such meetings were held during the year. The first of these took place in Cheyenne in March. Research problems of mutual concern to the Park Service and the Research Station were discussed in some detail, and the future of the Station as it relates to the Grand Teton National Park was given consideration. A second meeting held on August 5 at Grand Teton National Park Headquarters was concerned primarily with a progress report to Park Service personnel on the Station's research projects. The third meeting was held at the Research Station on September 13. This was attended by Mr. C. L. Wirth, Director of the National Park Service, and several other representatives of the National Park Service; Mr. Frank Oberhansley, Superintendent of Grand Teton National Park, and representatives of his naturalists staff and others; Mr. Laurance S. Rockefeller, Chairman of the Executive Committee of the New York Zoological Society; Dr. Fairfield Osborn, President of the New York Zoological Society; and representatives of the Advisory Board and staff of the Biological Research Station. The enthusiastic support which Mr. Wirth expressed for the research activities at the Station was encouraging and furnished stimulus for increased cooperation with the Grand Teton Park.

Cooperation with Student Conservative Program. Station personnel gave six lectures on various aspects of biology to the students in this program and also explained to them the research projects under way. The contributions made by our staff helped to make the initial year of the Student Conservation Program a success.

Physical Facilities. Three housing units were moved from Moran to the Station and remodeled. They served to increase the living facilities by replacing the Grimmacy housing which was destroyed, to make possible the addition of a bathhouse with new wash basins, showers and toilets, and to add a herbarium-botany laboratory. Improvements were made to the grounds and other buildings. Plans for future improvements include a seminar-library room or building and the replacement of the old, somewhat dilapidated bunkhouse.

TREASURER'S REPORTS

For the Year Ended December 31, 1957

David H. McAlpin, *Treasurer*
30 East 40th Street
New York 16, N. Y.

NEW YORK ZOOLOGICAL SOCIETY

BALANCE SHEET • December 31, 1957

Assets

Cash in banks and on hand		$ 337,690.76
Investments (approximate market value $7,649,418)—(notes 3 and 4)		6,622,293.03
Receivable from the City of New York:		
New York Zoological Society:		
Appropriation for park maintenance—calendar year 1957	$802,457.53	
Less amount received	616,782.54	
	185,674.99	
Deposit (note 4)	20,600.61	
	206,275.60	
New York Aquarium:		
Receivable	27.00	206,302.60
Other receivables		8,955.10
Inventories:		
Park facilities	23,907.69	
Aquarium facilities	18,311.53	42,219.22
Facilities' assets, less depreciation:		
Zoological Park (note 1):		
Improvements to land and buildings	168,061.25	
Equipment and miscellaneous items	64,382.39	
	232,443.64	
Aquarium facilities' equipment and miscellaneous items	28,947.99	261,391.63
Prepaid expenses and deferred charges		9,088.70
National collection of heads and horns, art gallery, library and sundry items		1.00
Collection of living animals		1.00
Jackson Hole research station buildings		1.00
Simla tropical research station		1.00
		$7,487,945.04

NEW YORK ZOOLOGICAL SOCIETY

BALANCE SHEET • December 31, 1957

Liabilities

Accounts payable and accrued expenses		$ 62,702.25
Payable to the City of New York—due on first stage completion of Aquarium (note 4)		60,290.61
Fund reserves:		
General Funds	$4,812,810.45	
Endowment Funds	1,563,696.85	
Special Purpose Funds	349,848.78	
Reserve for Educational and Other Purposes.	1,078.65	
Park Facilities Operating Fund	556,465.24	
Aquarium:		
Operating Reserve Fund	69,160.37	
New Aquarium Fund	11,891.84	7,364,952.18
		$7,487,945.04

Notes to financial statements:

(1) Park facilities' assets are subject to an agreement with the City of New York, and the net income from park facilities' operations may be used only for the purchase of animals and the improvement of Zoological Park.

(2) The balance sheet does not include the assets and liabilities of The Pension Fund.

(3) Except for income from investments, which is accounted for in the year received, the balance sheet is prepared on an accrual basis.

(4) The New York Zoological Society and the City of New York have entered into an agreement to construct an aquarium, as funds become available, at an estimated total cost of $7,100,000.00 to be shared equally by both parties. The construction of the first stage of the aquarium costing $1,565,134.00 has now been completed. The Society has deposited with the City of New York U. S. Treasury bonds and notes of the par value of $51,000.00 and cash in the amount of $9,400.00 as a guarantee for the balance, $60,290.00, of its share of the construction cost of $782,567.00. In addition, preparatory costs are estimated at $175,000.00 and the Society has provided $87,500.00 for its share of the cost.

FUND RESERVES

December 31, 1957

General:		
General Working Fund		$ 47,823.94
Anna M. Harkness Fund		1,169,053.35
Sage Fund		725,668.43
Mary Clark Thompson Fund		2,870,264.73
		4,812,810.45
Endowment:		
George F. Baker Fund	$ 136,015.08	
Edward P. Casey Fund	101,627.97	
Mary Thurston Cockroft Fund	38,464.04	
Robert Jaffray Fund	17,339.50	
William Pyle Philips Fund	12,793.95	
Rockefeller Fund	1,257,456.31	1,563,696.85
Special Purpose:		
Cadwalader Animal Fund	24,794.32	
Conservation Account	18,451.25	
William E. Damon Fund	32,650.39	
Grant Fund for the Protection of Wildlife	30,747.29	
Jacob H. Schiff Fund	132,847.80	
Stokes Bird Fund	6,246.89	
Miscellaneous	104,110.84	349,848.78
Reserve for Educational and Other Purposes		1,078.65
Park Facilities Operating Fund		556,465.24
		7,283,899.97
Aquarium Fund		11,891.84
Aquarium Operating Reserve Fund		69,160.37
		$7,364,952.18

See accompanying notes to financial statements.

PERMANENT WILD LIFE PROTECTION FUND

Cash	$ 1,262.30
Investments (approximate market value $172,600.)	163,436.97
Principal Fund at December 31, 1957	$ 164,699.27

SUMMARY OF CHANGES IN FUND RESERVES, OTHER THAN PARK FACILITIES AND AQUARIUM FUNDS

Year ended December 31, 1957

General Funds

Balance at December 31, 1956	$4,775,605.65
Receipts	149,278.04
	4,924,883.69
Expenditures	112,073.24
Balance at December 31, 1957	$4,812,810.45

Endowment Funds

Balance at December 31, 1956	$1,528,039.49
Receipts	36,064.50
	1,564,103.99
Expenditures	407.14
Balance at December 31, 1957	$1,563,696.85

Special Purpose Funds

Balance at December 31, 1956		$ 302,229.50
Receipts	$ 165,946.81	
Appropriations from other funds	103,440.46	269,387.27
		571,616.77
Expenditures	218,996.90	
Appropriations to other funds	2,771.09	221,767.99
Balance at December 31, 1957		$ 349,848.78

Reserve for Educational and Other Purposes

Balance at December 31, 1956	$ 4,647.63
Appropriations from other funds	1,330.63
	5,978.26
Expenditures	4,899.61
Balance at December 31, 1957	$ 1,078.65

See accompanying notes to financial statements.

AQUARIUM FUND

Year ended December 31, 1957

Balance at December 31, 1956			$ 57,906.36
Add:			
Gifts (Schedule 1)		$ 33,577.61	
Income from investments		2,437.50	
Miscellaneous		87.50	
		36,102.61	
Appropriation from the general funds of the Society:			
Anna M. Harkness Fund	$ 19,361.45		
Sage Fund	12,020.99		
Mary Clark Thompson Fund	47,547.22	78,929.66	
			115,032.27
			172,938.63
Deduct:			
Net loss on sale of securities		2,657.41	
Preparatory and construction costs borne wholly by the Aquarium Fund		114,543.57	
Postage costs in reference to document entitled "Aquarium-Ground Breaking Ceremony"		250.00	
Members' Day costs incurred		393.15	
Preliminary cost of obtaining the Belugas		1,000.00	
Miscellaneous		35.50	
			118,879.63
			54,059.00
Deduct payment to the City of New York representing Society's share of additional costs to complete construction of the first stage of the aquarium			42,167.16
Balance at December 31, 1957			$ 11,891.84

See accompanying notes to financial statements.

NEW YORK AQUARIUM

Statement of Income and Expense and Operating Reserve Fund
Year ended December 31, 1957

Balance of Aquarium Operating Reserve Fund at December 31, 1956			$ 1,800.36
Add receipts from:			
Admissions		$220,123.46	
Restaurants		36,649.21	
Parking field		27,147.50	
Souvenirs		12,635.48	
Guides and publications		5,809.82	
Head phones		1,624.95	
Miscellaneous income		150.70	
		304,141.12	
Less:			
Cost of merchandise sold	$ 25,333.03		
Personal service:			
Executive management	$45,782.69		
Aquarium exhibits	17,900.69		
Maintenance of buildings and grounds	51,510.54		
Facilities	29,996.09	145,190.01	
Supplies		24,869.98	
Materials and equipment		9,883.64	
Collections		8,020.95	
Administrative costs		17,057.09	
Other operating and general expenses		6,426.41	236,781.11
Net gain			67,360.01
Balance of Aquarium Operating Reserve Fund at December 31, 1957			$ 69,160.37

See accompanying notes to financial statements.

GENERAL WORKING FUND

Year ended December 31, 1957

Balance at December 31, 1956		$ 38,236.64
Add:		
Gifts (Schedule 1)	$ 33,258.37	
Life memberships	3,330.00	
Conservation film royalties	5,207.21	
Pro-rata share of net profit on sales and redemption of investments	860.30	
Miscellaneous	75.00	42,730.88
		80,967.52
Deduct payments:		
Production of publications on the care and exhibition of wild animals in captivity	3,500.00	
Operating costs of Department of Tropical Research at Simla, Trinidad, B.W.I.:		
For the year ended April 30, 1957	5,000.00	
For the year ended April 30, 1958	5,000.00	
Appropriation to The Conservation Foundation, Inc.	10,000.00	
Operating expenses and research at Jackson Hole Research Station	1,700.00	
Production of Penguin films	171.92	
Grant to the National Foundation for Junior Museums	750.00	
Acquisition of assets and trademark of firm d/b/a New York Aquarium	3,500.00	
Miscellaneous	2,796.35	
Deficit from general income account	725.31	
		33,143.58
Balance at December 31, 1957		$ 47,823.94

See accompanying notes to financial statements.

GENERAL INCOME ACCOUNT

Year ended December 31, 1957

Income:		
Income from investments		$318,266.32
Annual dues		51,586.50
Sales of publications		5,556.34
Gift		5,000.00
Miscellaneous income		4,194.39
		$384,603.55
Expenses:		
Actuarial fee		1,225.00
Annual report		3,006.30
Aquarium research		7,489.40
Audit fee		2,500.00
Conservation		20,000.00
Custodian fees		3,314.00
Educational activities		18,071.35
Employee welfare		2,793.97
Executive office		22,836.34
Group life insurance		6,488.62
Hospitalization		5,476.59
Insurance		7,205.77
Legal fees		2,700.00
Library		1,857.10
Members—meetings and services		21,067.40
Membership promotion and fund raising		8,115.24
Pensions:		
Fund contribution—150% of employee contributions	$ 27,423.24	
Auxiliary payments	4,818.17	32,241.41
Photography—salaries and supplies		11,008.62
Publication expenses:		
Salaries and other expenses	20,423.75	
"Animal Kingdom"	13,259.35	
"Zoologica"	7,475.71	41,158.81
Reception expense		2,819.35
Social security taxes		1,710.61
Traveling expense		5,600.86
Tropical research		17,779.72
		246,466.46
Park maintenance expenditures for the year 1957	941,319.93	
Less amount provided by New York City	802,457.53	
Amount expended by New York Zoological Society		138,862.40
Deficit carried to General Working Fund		(725.31)
		$384,603.55

See accompanying notes to financial statements.

PARK FACILITIES

Statement of Income and Expense and Operating Fund

Year ended December 31, 1957

Balance of Park Facilities Operating Fund at December 31, 1956			$522,518.83
Add:			
Receipts from sales at restaurants, stands, etc. and from services		$1,041,300.29	
Less:			
Cost of merchandise sold	$312,708.18		
Salaries and commissions	417,437.56		
Operating and maintenance supplies	106,746.63		
Depreciation	25,528.54		
Comprehensive public liability insurance	13,062.57		
Other operating and general expenses	29,870.40	905,353.88	
Net income from sales at restaurants, stands, etc. and from services (note 1)			135,946.41
			658,465.24
Deduct:			
Appropriations for park improvements		87,000.00	
Appropriations for the purchase of animals		15,000.00	
			102,000.00
Balance of Park Facilities Operating Fund at December 31, 1957			$556,465.24

See accompanying notes to financial statements.

GIFTS, GRANTS AND LEGACIES RECEIVED

Year ended December 31, 1957

General Working Fund:		
George F. Baker, Jr.		$ 1,388.62
Mrs. Constantine Sidamon-Eristoff		1,127.50
Dr. H. Clay Frick II		2,648.00
Childs Frick		10,862.50
Warren Kinney		1,000.00
Estate of August Kuhn		500.00
Mr. and Mrs. Howard Phipps, Jr.		2,520.00
Magda Merck Sheldon		1,968.00
Estate of Millicent White Smyth		10,000.00
J. Watson Webb		1,243.75
		33,258.37
Mary Thurston Cockroft Fund:		
Estate of Mary Thurston Cockroft		1,694.36
Bermuda Biological Station for Research:		
Childs Frick	$ 2,000.00	
Dr. H. Clay Frick II	500.00	2,500.00
Bermuda Aquarium and Museum:		
Childs Frick		2,000.00
Biological Synthesis of the Poeciliid Fishes:		
National Science Foundation		1,900.00
Biology of Tropical Avifauna:		
National Science Foundation		8,300.00
Blickman Film Fund:		
Saul Blickman		5,000.00
Cancer Research:		
National Cancer Institute	16,940.00	
Damon Runyon Memorial Fund for Cancer Research, Inc.	12,900.00	29,840.00
Genera of Recent Mammals of the World:		
National Institute of Health Grant		18,400.00
Madison and DeForest Grant Scientific Research Fund:		
De Forest Grant		3,987.50
Northern Mexican Bighorn Study:		
Union Foundation		5,000.00
Ocypodid Crab Research:		
National Science Foundation		5,400.00
Physiology of Reef Building Corals:		
National Science Foundation		10,700.00
Carried forward		$127,980.23

Brought forward		$127,980.23
Special Fund for Construction of Animal Nursery:		
Vincent Astor		500.00
Special Fund for Coral Reef Studies:		
Anonymous		625.00
Special Projects:		
George F. Baker, Jr.	$ 200.00	
The Roger Benjamin Fund, Inc.	50.00	
Kershaw Burbank	5.00	
Dorothy Jordan Chadwick Fund	250.00	
Percy Chubb	100.00	
Charles E. Culpeper Foundation, Inc.	1,500.00	
George R. M. Ewing	25.00	
Booth Ferris Foundation	250.00	
First Lutheran Church of Throggs Neck	5.00	
Anne Van N. Gamble	75.00	
Robert G. Goelet Foundation	2,000.00	
Josephine C. Griffon	5.00	
Don and Maraleita Herbert	10.00	
Polly and Gilbert Kahn Foundation, Inc.	100.00	
The Leonhardt Foundation, Inc.	100.00	
The Lyric Foundation, Inc.	25.00	
Ward Melville	1,151.25	
Merck Family Fund	500.00	
The Aaron E. Norman Fund, Inc.	100.00	
Samuel Ordway, Jr.	1,500.00	
Ridgeway Parent Teacher Assn.	25.00	
Katharine S. Rosin	100.00	
Mrs. G. E. Roosevelt	25.00	
Benjamin Rowland	10.00	
H. F. Schiemann	10.00	
Joseph M. Schulte	2.00	
M. J. Sherma	5.00	
The Scherman Foundation, Inc.	250.00	
Richard Shields Charitable Trust	100.00	
The Corporation Trust Co.	250.00	
Time, Incorporated	250.00	
Mrs. Thomas Waller	200.00	
Martin Wehncke	5.00	
C. W. Williams	5.00	
Mrs. Neil MacDonald Wilder	20.00	
Others (2)	2.00	
		9,210.25
Carried forward		$138,315.48

Gifts, Grants and Legacies Received, Continued

Brought forward		$138,315.48
Aquarium Fund:		
Douglas H. Alexander	$ 100.00	
George F. Baker, Jr.	5,588.61	
Elizabeth B. Ballard	25.00	
Mr. and Mrs. Dana T. Bartholomew	100.00	
Robert E. Blum	100.00	
Martha Casamajor	25.00	
Sylvia M. Corning	100.00	
Ursula Corning	50.00	
Howard Corlies	50.00	
Mabel S. Cromwell	25.00	
C. Suydam Cutting	1,071.00	
Eli Whitney Debevoise	100.00	
John Elliott	100.00	
Mrs. Constantine Sidamon-Eristoff	1,127.50	
Mrs. Leopold Frederick	25.00	
Dr. H. Clay Frick II	2,648.00	
Paul E. Geier	25.00	
Mrs. Benjamin D. Gilbert	100.00	
Bernard F. and Alva B. Gimbel Foundation, Inc.	1,000.00	
Peter R. Gimbel	200.00	
Good Neighbor Foundation, Inc.	25.00	
Peter Grimm	250.00	
Ruth S. Heyman	100.00	
H. J. Heinz II	500.00	
Mrs. William Thorn Kissel	300.00	
Mr. and Mrs. David McAlpin	1,003.50	
Martha Dana Mercer	25.00	
Dudley H. Mills	25.00	
Lawrence Morris	100.00	
New Jersey Aquarium Society	25.00	
Phipps Florida Foundation (John E. Phipps, Jr., and Colin Phipps)	3,000.00	
Francis F. Randolph	25.00	
Donald S. Rochow	25.00	
The Schiff Foundation	5,000.00	
Herbert F. Schwarz	25.00	
Robert G. Stone	100.00	
Webster Benevolent Foundation	10,000.00	
Priscilla de Forest Williams	25.00	
Various contributions under twenty-five dollars	464.00	
		33,577.61
		$171,893.09

THE PENSION FUND

(Founded by Andrew Carnegie)

STATEMENT OF CASH TRANSACTIONS
Year ended December 31, 1957

Balance at December 31, 1956:			
Investments (approximate market value $1,553,000.00)			$1,312,719.92
Accrued interest purchased			428.60
Uninvested balance of cash			9,980.11
			1,323,128.63
Receipts:			
Income from investments:			
Interest		$ 19,775.71	
Dividends		43,527.54	
		63,303.25	
Contributions by employees		24,040.94	
Contributions by New York Zoological Society (150% of contributions by employees):			
Society	$27,424.45		
Facilities	6,856.07		
Aquarium	1,782.46	36,062.98	
Special contributions		1,075.74	124,482.91
			1,447,611.54
Expenditures:			
Refunds on account of resignations		5,742.89	
Pension disbursements		38,269.44	
Pension payments to heirs of deceased employees		37.48	44,049.81
			1,403,561.73
Net profit on sale and redemption of securities			23,374.11
Balance at December 31, 1957:			
Investments (approximate market value $1,603,000.00)		1,409,613.06	
Accrued interest purchased		78.90	
Uninvested balance of cash		17,243.88	
			$1,426,935.84

PEAT, MARWICK, MITCHELL & CO.

ACCOUNTANTS AND AUDITORS

Seventy Pine Street

New York 5, N. Y.

ACCOUNTANTS' REPORT

THE BOARD OF TRUSTEES

NEW YORK ZOOLOGICAL SOCIETY:

We have examined the balance sheet of the New York Zoological Society as of December 31, 1957 and statements of the transactions of the various funds of the Society and of The Pension Fund for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

We made a test-check of the subscriptions, donations and dues reported as received and of the income from investments, and found such items to be properly recorded. The securities recorded in the various funds were in agreement with schedules and other supplementary data prepared by the custodians of such securities held for the account of the Society. Bank balances were confirmed directly to us by the depositaries and were reconciled with the respective cash balances recorded in the accounts. We examined approved vouchers and paid checks for a number of representative expenditures.

In our opinion, the accompanying balance sheet and statements of transactions of the various funds of the Society present fairly the financial position of the Society at December 31, 1957 on the basis stated therein, and the changes in the funds of the Society for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

PEAT, MARWICK, MITCHELL & CO.

New York, N. Y.
March 14, 1958

REPORT OF THE AUDITING COMMITTEE OF THE NEW YORK ZOOLOGICAL SOCIETY

To the President and Board of Trustees
of the New York Zoological Society

Dear Sirs:

We have examined the reports of Peat, Marwick, Mitchell & Co., Accountants and Auditors, on their examination of the balance sheet of the New York Zoological Society as of December 31, 1957, and statements of the transactions of the various funds of the Society, the Aquarium, and of The Pension Fund for the year then ended. We have noted that their examination was made in accordance with generally accepted accounting principles and, accordingly, included such tests of the accounting records and such other auditing procedures as they considered necessary in the circumstances. The balance sheet and statements of transactions of the various funds of the Society present fairly, in our opinion, the financial position of the Society as of December 31, 1957.

We accordingly submit Messrs. Peat, Marwick, Mitchell & Company's reports to you as a satisfactory examination of the balance sheet and statements of the transactions of the various funds of the Society, the Aquarium, and of The Pension Fund.

Respectfully submitted,

George F. Baker, Jr.
William DeForest Manice
J. Watson Webb

April 8, 1958

SUMMARY OF EXPENDITURES, 1896 to 1957, New York Zoological Society and the City of New York, on Account of the Development and Maintenance of the Zoological Park and the Aquarium, Including the Purchase of Collections and Also for the Scientific and General Purposes of This Society.

	EXPENDED BY THE CITY OF NEW YORK			FROM GATE RECEIPTS		EXPENDED BY THE NEW YORK ZOOLOGICAL SOCIETY									
Year	Zoological Park Maintenance	Aquarium Maintenance	Bond Issues a/c Park & Aquarium	Construction and Repairs	Purchase of Animals	Zoological Park Development	Aquarium Improvements	Zoological Park Maintenance	Aquarium Maintenance	Purchase of Animals	Aquarium Specimens	Heads and Horns Collection	Pension Fund Contribution	Library and Paintings	Scientific and General Purposes
1896	.....	.....	.....	.....	.....	$ 4,213.63	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	.....	.....	.....	.....	.....	6,424.61	.....	.....	.....	.....	.....	.....	.....	.....	$ 2,903.74
1898	.....	.....	.....	.....	.....	23,597.80	.....	$ 1,292.16	.....	.....	.....	.....	.....	.....	4,339.20
1899	$ 30,000.00	.....	.....	.....	.....	145,495.80	.....	7,038.61	.....	$ 8,540.72	.....	.....	.....	$ 102.76	3,476.02
1900	40,000.00	.....	$125,000.00	.....	$ 2,470.88	34,626.24	.....	6,189.33	.....	3,784.32	.....	.....	.....	88.13	5,601.78
1901	65,000.00	.....	300,000.00	.....	2,998.80	18,348.61	.....	3,714.37	.....	11,652.24	.....	.....	.....	462.20	7,597.16
1902	85,000.00	$ 5,959.97	250,000.00	.....	4,256.50	5,908.69	.....	2,757.57	.....	20,983.07	.....	.....	.....	224.73	11,068.69
1903	104,965.00	46,453.68	280,000.00	.....	5,912.95	1,038.20	.....	.....	.....	20,361.62	.....	.....	.....	456.03	13,608.10
1904	104,965.00	46,439.72	315,000.00	.....	5,421.90	1,013.87	.....	1,894.37	.....	14,299.61	.....	.....	.....	887.16	15,072.84
1905	134,965.00	44,968.50	275,000.00	.....	6,849.00	144.00	.....	.....	.....	20,643.40	.....	.....	.....	418.10	18,773.90
1906	144,965.00	44,987.71	250,000.00	.....	8,132.35	778.48	.....	.....	.....	14,907.36	.....	.....	.....	319.16	17,961.67
1907	141,558.75	44,183.87	100,000.00	.....	8,248.65	370.72	.....	.....	.....	10,606.03	.....	$ 892.71	.....	644.05	15,999.68
1908	154,627.00	44,157.27	65,000.00	.....	9,446.40	232.27	.....	.....	.....	4,231.61	.....	735.77	.....	1,313.87	14,693.92
1909	162,325.00	45,971.44	10,000.00	.....	9,992.75	2,860.92	.....	.....	.....	9,734.43	.....	7,340.82	.....	609.56	17,168.95
1910	167,632.00	45,974.86	89,500.00	.....	9,909.90	5,918.35	.....	.....	.....	4,339.25	$ 973.90	2,036.39	.....	1,021.87	20,627.77
1911	174,632.00	47,560.21	155,000.00	.....	11,611.15	1,155.00	.....	.....	.....	6,659.89	1,191.80	1,615.38	.....	1,221.26	23,409.39
1912	182,365.00	46,597.08	.....	.....	11,838.40	40.00	.....	.....	.....	22,750.18	1,350.03	556.94	.....	1,031.55	32,109.01
1913	191,925.00	47,335.62	29,100.00	.....	12,404.25	218.45	.....	.....	.....	10,665.57	1,850.25	486.00	.....	732.97	32,543.88
1914	200,000.00	46,995.53	.....	$ 9,237.81	3,831.15	2,175.13	.....	.....	.....	22,590.44	1,792.99	338.73	$3,333.33	3,541.15	28,246.42
1915	200,000.00	46,991.66	21,425.00	9,175.86	.....	887.88	.....	.....	.....	13,629.41	1,466.64	1,024.91	8,000.00	4,181.24	31,398.08
1916	197,074.35	46,996.43	.....	9,599.81	.....	425.30	.....	.....	.....	13,511.12	2,193.57	1,031.47	8,000.00	1,555.12	38,339.99
1917	199,560.00	46,903.61	.....	3,488.31	7,118.90	1,450.05	.....	11,537.79	.....	10,175.70	1,637.15	18.12	8,000.00	2,869.20	44,262.48
1918	207,586.00	48,630.71	.....	2,642.70	.....	48.12	.....	1,580.00	$ 93.61	8,425.92	960.19	18.61	8,000.00	3,559.85	34,125.49
1919	190,000.00	45,000.00	5,000.00	4,917.84	.....	.....	$ 3,450.00	19,924.00	407.07	13,345.59	1,028.05	88.27	8,000.00	1,442.07	45,599.71
1920	250,098.27	53,971.48	15,000.00	17,438.28	.....	5,007.00	4,095.03	5,141.92	.....	32,761.08	1,654.02	263.86	8,000.00	2,517.64	51,018.20
1921	276,951.01	65,203.12	86,000.00	25,463.77	.....	88,734.92	53,635.02	6,068.17	976.47	27,442.59	2,165.05	2,661.67	8,000.00	4,698.24	55,684.15
1922	264,618.05	63,341.26	25,000.00	17,060.00	.....	50,888.65	16,153.03	10,074.88	3,326.28	43,047.41	3,057.91	7,191.93	8,000.00	1,765.78	58,797.69
1923	262,724.50	57,166.63	.....	18,388.20	.....	5,000.00	.....	19,019.09	3,319.44	24,456.20	1,432.89	1,550.69	8,000.00	3,391.96	58,404.21
1924	262,471.01	57,319.20	7,970.00	16,806.00	.....	.....	28,233.45	28,956.34	8,097.14	11,560.62	2,013.88	942.34	8,000.00	1,938.77	76,559.41
1925	262,808.69	58,324.89	85,000.00	19,974.05	.....	.....	.....	38,793.01	4,380.45	20,843.01	2,609.55	667.78	8,000.00	1,174.24	242,753.89
1926	273,815.12	62,266.20	1,500.00	20,102.90	.....	.....	.....	45,467.10	7,261.21	23,460.04	2,847.35	306.32	8,000.00	562.40	87,915.27
1927	276,855.19	65,216.89	.....	18,960.48	.....	.....	1,395.00	61,968.22	11,656.97	27,545.92	2,861.55	135.06	8,000.00	2,477.37	82,807.54
1928	319,380.50	88,109.12	.....	18,106.25	.....	2,480.06	.....	52,676.35	10,776.84	21,001.88	2,912.97	107.89	8,000.00	1,168.15	88,794.37
1929	338,359.00	71,229.35	100,000.00	21,957.80	.....	13,095.54	984.85	59,673.38	13,670.81	23,783.69	3,572.14	669.48	8,000.00	4,029.63	122,774.78
1930	350,170.92	81,343.46	50,000.00	20,834.91	.....	2,500.89	375.00	65,600.39	16,966.30	17,492.92	1,355.56	639.04	10,000.00	2,726.37	134,278.88
1931	349,344.95	76,408.08	.....	14,890.58	.....	5,131.68	.....	65,601.03	19,541.40	24,439.56	3,650.58	1,707.40	10,000.00	6,713.26	128,871.12
1932	337,490.01	76,071.24	.....	16,710.25	.....	1,852.40	.....	61,127.48	19,155.01	20,039.28	1,934.84	335.00	10,000.00	3,607.97	97,303.32
1933	268,633.38	67,814.24	5,422.63	13,961.02	.....	.....	.....	62,996.66	18,120.73	7,644.14	2,199.91	118.65	10,000.00	3,384.38	86,757.06
1934	257,423.08	65,806.61	.....	11,025.88	.....	1,037.19	.....	66,502.59	18,229.23	9,267.86	1,641.06	162.86	10,000.00	606.53	81,711.26
1935	265,630.94	68,203.46	.....	11,596.51	.....	.....	.....	60,237.94	18,832.57	16,530.28	2,031.56	275.21	10,000.00	383.07	82,929.14
1936	265,057.37	68,760.95	.....	13,496.42	.....	100.00	.....	57,270.94	17,886.45	20,918.46	2,867.50	178.43	10,000.00	470.18	79,835.73
1937	267,192.29	73,807.74	.....	11,527.85	.....	.....	.....	56,262.45	16,408.55	22,417.08	2,799.17	24.79	19,047.09	1,415.39	92,609.40
1938	282,759.71	79,225.20	.....	10,235.70	.....	.....	.....	57,043.10	13,408.11	15,351.51	558.82	.....	20,455.95	431.41	93,543.59
1939	283,280.81	79,164.23	.....	11,019.23	.....	.....	.....	51,050.57	12,941.70	23,012.27	403.75	175.00	20,475.95	345.30	92,576.90
1940	282,761.15	78,905.12	.....	8,392.10	.....	102,343.87	.....	57,513.25	12,022.76	39,627.52	577.10	.....	20,069.17	533.85	98,501.09
1941	286,284.59	62,052.95	.....	15,947.33	.....	187,408.02	.....	84,254.19	9,466.70	57,236.77	574.40	.....	18,206.34	1,316.89	100,846.55
1942	258,656.76	50,931.00	.....	10,169.20	.....	43,088.43	.....	49,226.40	4,807.79	8,369.36	553.52	.....	10,762.57	401.65	144,765.21
1943	305,203.23	33,324.31	.....	11,904.80	.....	38,860.03	3,500.00	51,833.51	5,154.21	2,319.36	336.19	.....	9,832.98	574.01	73,192.91
1944	315,787.82	33,790.82	.....	17,316.09	.....	32,101.60	23,420.00	50,691.82	3,717.28	5,106.59	96.48	.....	10,234.06	405.52	88,594.55
1945	334,288.37	38,158.81	.....	20,745.35	.....	58,943.48	225.52	58,846.39	5,928.38	11,466.19	460.34	.....	12,681.89	1,001.92	112,541.29
1946	366,113.74	42,654.03	.....	24,688.34	.....	122,388.48	*34,997.55	62,439.25	6,742.70	43,037.09	172.30	.....	14,238.14	741.14	168,881.41
1947	440,147.60	40,285.04	.....	22,665.64	.....	101,392.80	*19,669.26	85,294.53	8,715.67	71,342.79	687.91	.....	15,751.26	690.03	348,442.82
1948	469,638.83	38,564.40	.....	30,690.08	.....	93,683.84	116.71	83,652.16	9,419.90	26,461.29	470.63	.....	16,708.48	1,004.40	346,222.76
1949	497,900.12	40,189.02	.....	25,400.02	.....	344,122.56	*4,203.50	82,044.22	11,170.76	50,408.80	1,370.90	.....	31,251.50	1,220.17	333,513.75
1950	506,035.90	40,188.48	.....	23,731.77	.....	62,598.22	.....	85,411.22	11,404.61	22,947.59	767.71	.....	35,049.90	970.52	298,458.78
1951	553,918.55	42,774.35	.....	28,913.22	.....	69,747.69	.....	94,063.94	12,966.97	17,934.34	613.19	.....	17,936.21	1,365.34	271,570.10
1952	579,931.76	45,809.54	.....	27,588.02	.....	40,542.32	.....	105,641.48	13,721.06	18,806.08	665.69	.....	18,938.55	1,618.36	335,393.47
1953	632,546.60	45,756.46	.....	27,066.78	.....	218,810.05	*9,123.67	97,757.81	14,329.34	28,470.18	468.74	.....	21,806.69	796.59	309,159.64
1954	639,084.84	48,606.34	.....	28,008.91	.....	76,808.53	*746,130.99	100,743.77	14,291.04	22,247.80	781.88	.....	22,999.30	1,382.30	297,882.62
1955	650,172.61	49,049.83	.....	30,615.05	.....	56,213.34	*88,350.00	102,401.35	13,761.57	28,859.77	782.74	.....	23,293.09	6,093.43	321,406.32
1956	738,263.33	36,516.95	.....	29,900.00	.....	61,385.97	*21,768.31	109,039.58	18,175.44	29,141.48	287.81	.....	27,806.41	5,304.83	311,250.88
1957	784,753.54	17,703.99	.....	32,804.54	.....	85,464.03	161,889.38	128,980.29	185,230.53	23,589.69	139.03	.....	27,423.24	1,857.16	332,630.13
Add Premium on Bonds, less Balances Reverting to the City			35,559.89												
Expended in Connection with Preparation and Publication of "A Monograph of the Pheasants" – Gift of Col. Anthony R. Kuser															194,100.00
Expended in Connection with Galapagos Expedition – Gift of Harrison Williams															98,670.00
Transfer by the Society of Endowment for Pension Fund–July 1, 1941													239,523.45		
Totals	$17,435,699.24	$ 2,956,122.66	$ 2,681,477.52	$785,165.65	$120,443.93	$2,229,103.71	$1,221,716.27	$2,477,294.97	$596,483.05	$1,206,225.97	$68,821.19	$34,297.46	$847,825.55	$97,768.12	$6,960,878.06
		$23,073,299.42		$905,609.58					$15,740,414.85						

* Includes expenditures in respect of new aquarium.

NEW YORK ZOOLOGICAL SOCIETY

INCORPORATION of the New York Zoological Society by the State of New York was accomplished under Chapter 435 of the Laws of 1895 and the basic purposes of the Society were embodied in Section 2:

> Said corporation shall have power to establish, maintain and control zoological parks, gardens, or other collections for the promotion of zoology and kindred subjects, and for the instruction and recreation of the people. Said corporation may collect, hold and expend funds for zoological research and publication, for the protection of wild animal life, and for kindred purposes, and may promote, form, and co-operate with other associations with similar purposes, and may purchase, sell, or exchange animals, plants, and specimens appropriate to the objects for which it was created.

Subsequently, at a special meeting of the Commissioners of the Sinking Fund, City of New York, held on March 24, 1897, a resolution was passed allotting South Bronx Park for the use of the New York Zoological Society and establishing the terms of a management agreement under which the Society has operated since that date, with only minor modifications.

The resolution of March 24, 1897, and the supplemental agreement of January 24, 1942, provided that the Society should furnish the original equipment of buildings and animals, that it should raise $250,000 by subscription within three years of the date of starting work on the improvement of the grounds, that the Society should have the right to establish an endowment fund to be used solely for the general uses and purposes of the Society unless otherwise specified by the donors, that the City of New York should provide funds for the maintenance and care of the Zoological Park and for the maintenance of the animal collections, that the Zoological Park should be open to the public free at least four days a week, that the Society may expend the net proceeds of facilities only for the purchase of animals and the improvement of the Zoological Park and that the Society should have the right to make and control all appointments of employees and to fix salaries and make promotions.

NEW YORK ZOOLOGICAL SOCIETY

Organized 1895

Presidents

I. Andrew H. Green ..... 1895 to 1897
II. Levi P. Morton ..... 1897 to 1909
III. Henry Fairfield Osborn ..... 1909 to 1925
IV. Madison Grant ..... 1925 to 1937
V. W. Redmond Cross ..... 1937 to 1940
VI. Fairfield Osborn 1940

First Vice-presidents

I. J. Hampton Robb ..... 1895 to 1897
II. Henry Fairfield Osborn ..... 1897 to 1909
III. Samuel Thorne ..... 1909 to 1916
IV. Madison Grant ..... 1916 to 1925
V. Frank K. Sturgis ..... 1925 to 1932
VI. W. Redmond Cross ..... 1932 to 1937
VII. Kermit Roosevelt ..... 1937 to 1939
VIII. Alfred Ely 1939

Second Vice-presidents

I. Charles E. Whitehead ..... 1895 to 1902
II. John L. Cadwalader ..... 1902 to 1915
III. Madison Grant ..... 1915 to 1916
IV. Frank K. Sturgis ..... 1916 to 1925
V. Henry D. Whiton ..... 1925 to 1930
VI. Kermit Roosevelt ..... 1930 to 1937
VII. Alfred Ely ..... 1937 to 1939
VIII. Laurance S. Rockefeller 1939

Honorary Vice-president

I. DeForest Grant 1957

Treasurers

I. L. V. F. Randolph ..... 1895 to 1901
II. Charles T. Barney ..... 1901 to 1903
III. Percy Rivington Pyne ..... 1903 to 1922
IV. Cornelius R. Agnew ..... 1922 to 1953
V. David H. McAlpin 1953

Secretaries

I. Madison Grant ..... 1895 to 1925
II. William White Niles ..... 1925 to 1935
III. Fairfield Osborn ..... 1935 to 1940
IV. Harold J. O'Connell 1941

Chairmen, Executive Committee

I. Charles E. Whitehead ..... 1895 to 1896
II. Henry Fairfield Osborn ..... 1896 to 1903
III. Charles T. Barney ..... 1903 to 1907
IV. Henry Fairfield Osborn ..... 1907 to 1909
V. Madison Grant ..... 1909 to 1937
VI. W. Redmond Cross ..... 1937 to 1940
VII. Laurance S. Rockefeller ..... 1940 to 1943
VIII. Fairfield Osborn ..... 1943 to 1945
IX. Laurance S. Rockefeller 1945

Directors

I. William T. Hornaday
Zoological Park ..... 1896 to 1926
II. Charles H. Townsend
New York Aquarium ..... 1902 to 1937
III. W. Reid Blair
Zoological Park ..... 1926 to 1940
IV. Allyn R. Jennings
Zoological Park ..... 1940 to 1941
V. Charles M. Breder, Jr.
New York Aquarium ..... 1937 to 1943
VI. John Tee-Van
Zoological Park 1952
General Director, Zoological Park & Aquarium. 1957
VII. Christopher W. Coates
New York Aquarium 1956

BOARD OF TRUSTEES

City of New York
Ex-officio

Hon. Robert F. Wagner, *The Mayor*
Hon. Robert Moses, *Commissioner of Parks*

Class of 1958

George F. Baker, Jr.
John Elliott
Robert I. Gannon, S. J.
Peter Grimm
Walter M. Jeffords, Jr.
Fairfield Osborn
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Goelet, John
Goelet, Robert W.
Goelet, Mrs. Robert W.
Goldstone, Harmon H.
Goodell, James McDonald
Graham, Charles V.
Green, Edward H.
Greenleaf, Robert
Greenway, Gilbert C., 4th
Greenway, Mrs. James C.
Greenway, Lauder
Greenway, Miss Nelse Lawrence
Grimm, Peter
Grinnell, Mrs. George Bird
Griswold, Edward L.
Griswold, Evan S.
Griswold, John S., Jr.
Griswold, Miss Susan Shelby
Griswold, Miss Ursula W.
Griswold, William E. S., Sr.
Grosvenor, Dr. Gilbert
Guggenheim, S. R.
°Halls, William, Jr.

°*Deceased*

Hamilton, Brig. Gen. Pierpont Morgan
Hance, Percy L.
Hanger, William Arnold
Hardeen, Mrs. Theodore, Jr.
Harjes, John
Harriman, E. Roland
*Harvey, Eli
Haskins, Dr. Caryl P.
Haxall, B. W.
Helme, Mrs. George A.
Henderson, Norman A.
*Hepburn, Mrs. A. Barton
Higginson, James J.
Hilles, Mrs. Frederick W.
Hochschild, H. K.
Holman, Eugene
Howells, Mrs. John Mead
Hunter, Mrs. Fenley
Hutton, William E.
Irons, Henry Clay
Irwin, John N., 2nd
Irwin, John V.
Isles, Phillip
Ittleson, Henry, Jr.
James, Mrs. Darwin R., 3rd
Jarvis, Ernest G.
Jeffords, Walter M., Jr.
Jennen, Joseph
Jennings, Mrs. Lawrence K.
Jennings, Mrs. Oliver G.
Kanuk, Charles
Keiser, Mrs. David M.
Kenedy, Miss Rosemary
Kenyon, Lee J.
Kiernan, John
Kirkland, Miss Winifred
Kleberg, Robert J., Jr.
Krech, Dr. Shepard
Ladd, W. S., Jr.
Lambert, Mrs. Gerard B.
Lambert, Dr. Samuel W., Jr.
Lamont, Miss Elizabeth K.
Lane, George B.
Leontios, George
Lerner, Michael
Leschin, Frank Zachary
Levi, Benjamin
Lewis, Mrs. Wilmerth S.
Lincoln, Edward K.
Lindboe, Sidney R.
Lindeberg, Mrs. H. T.
Lindheimer, B. F.
*Litchfield, E. Hubert
Llewellyn, Mrs. Ebben Schramm
Lochrie, John
Loomis, Alfred L.
Lovell, F. Hallett
Low, Mrs. Clara B.
Luce, Henry R.
Lynch, William
Madeira, Percy C.
Mahaffie, Mrs. C. D.
Mallory, Charles H.
Manice, William De Forest
Maraventano, Dr. Louis William
Margetts, Walter T., Jr.
Marshall, James
Marshall, Walter P.
Martin, William McChesney, Jr.
Mastick, Seabury C.
Mauze, Mrs. Jean
Maynard, Mrs. Katharine
McAlpin, Mrs. David H.
McCoy, Mrs. Ethel B.
McCracken, Richard Norman
McEwen, Mrs. Paul
McKay, Robert Gordon
McKinney, Glenn Ford
McLean, John R.
McMullan, Joseph V.
Mead, Mrs. Winter
Menken, Miss Helen
Mercer, Mrs. Martha Dana
*Merck, George W.
Merck, George W., Jr.
Meredith, Col. R. Luff
Merlesmith, Mrs. Van Santvoord
Metcalf, Mrs. Manton B., Jr.
Metcalf, Rowe B.
Milbank, Dunlevy
Milbank, Jeremiah
Miller, Amos B.
Mills, Mrs. Ogden L.
Miner, Roger L.
Mitchell, H. R.
Mitchell, Joel S., Jr.
Mitchell, Sidney A.
Mitten, Dr. H. W.
Monahan, Mrs. Alfred H.
Monahan, James T.
Morgan, Brewster
Morris, Lawrence
Morris, Mrs. Lewis Rutherfurd
Morrison, Mrs. Mary L.
Mowbray, Louis L.
Murley, Sydney H.
Murray, Mrs. Ernest M.
Nesbitt, Abram
Nesbitt, Dr. Samuel
Newman, Cyril J.
Obergfell, Mrs. Emma
O'Connell, Harold J.
Offerman, Lt. Col. Pierre
Opdyke, Pieter J.
Ordway, Samuel H., Jr.
Ordway, Mrs. Samuel H., Jr
Pack, Arthur Newton
*Pack, Randolph G.
Palmer, Arthur J.
Palmer, Mrs. Henry W.
Papalexis, Christ G.
Parsons, Joseph
Patterson, Hon. Richard C., Jr.
Peters, Theodore
Peters, Thomas M.
Peyton, Bernard
Peyton, Mrs. Bernard, Jr.
Pierce, Miss Patricia
Pierre, Mrs. Lillian
Pillot, Andre P.
Pond, James B.
Pratt, Mrs. George D.
Proctor, A. Phimister
Pyne, Eben W.
Pyne, Mrs. Grafton H.
Quantrell, Ernest H.
Randolph, Francis F.
Raskob, John J.
Raymond, Charles H.
Read, Bayard W.
Redmond, Mrs. Henry S.
Redmond, Mrs. Roland L.
Reed, Miss Bertha M.
Renner, Charles J.
*Rice, Dr. Alexander Hamilton
Ridgway, Mrs. William C., Jr.
Robinson, Mrs. Beverly R.
Rockefeller, Mrs. Laurance S.
Roebling, Donald
Roeder, Arthur
Rogers, James Gamble, Jr.
Roosevelt, Archibald B.

*Deceased

Roosevelt, Mrs. Kermit
Rosentiel, Lewis S.
Rosin, Mrs. Katharine S.
Roth, William M..
Rungius, Carl
Rust, Adolf H.
Sackett, Mrs. Nelson B.
Sage, Dean
Samish, Arthur H.
Sandor, Miss Toni
Sanford, Henry, Jr.
Sanford, Samuel S.
Sanger, Morgan Pruyn
Schaefer, F. M. E.
Schectman, Alan
Schieffelin, Schuyler
Schieffelin, William Jay, Jr.
Schoo, Mrs. Clarence
Scoville, Miss Grace
Seaman, Joseph H., Jr.
Seaman, Thomas D.
Shaffer, E. E. D.
Shields, Richard
Simmons, Grant G.
Simmons, William Matthew
Slade, Mrs. C. F. Roe
Slater, H. N.
Slater, William A.
Sloan, Benson B.
Smith, Miss Nellie M.
Smithe, Frank B.
Spalding, Philip
Squier, Stuart C.
Stanley, Mrs. Robert C.
Stein, Meyer
Sterling, Miss Cynthia W.
Stone, Robert G.
Stoye, Frederick H.
Strandberg, Mrs. Harriet B.
Strauss, Miss Anna Lord
Streeter, Daniel Denison
Stromsted, Mrs. Julia Jay
Swanson, George
Taylor, Frank J.
Tee-Van, John
Tee-Van, Mrs. John
Thomas, Lowell
Thorne, Oakleigh, II
Trefflich, Henry
*Trevor, John B.
Vail, Miss Siri Jennings
Vail, Mrs. Thomas
Van Bomel, Mrs. Catharine B.
Vanderbilt, Alfred Gwynne
Vandercook, John W.
Vander Pyl, Mrs. Mary
Van Norden, Mrs. Grace Talcott
Van Rensselaer, Charles A.
Vida, A. M.
Vretta, Carl
Wadsworth, Mrs. W. P.
Wainwright, Richard T.
Wallace, DeWitt
Wallace, Mrs. DeWitt
Ward, Mrs. Charlotte
Washington, Miss Louise
Webb, Harry Havemeyer
Webb, Mrs. J. Watson
Webb, Samuel B., Jr.
Webster, Mrs. Edwin S., Jr.
Weed, J. Spencer
Weisfeldt, M. J.
Weiskopf, Daniel K.
Weiss, L. A.
Weyant, Miss Winthrope
Whalen, Grover A.
Wharton, William P.
White, Ogden
Whitman, Paul
Whitney, Cornelius Vanderbilt
Whitney, John Hay
Wilcox, Roy C.
Willcox, James
Willetts, Howard
Wilmerding, John C., Jr.
Wilson, Brant Rex
Winthrop, Robert
Wollman, Dr. Leo
Zabriskie, Christian A.

Contributing Members

Abrahams, Henry B.
Abramovitz, Max
Abreu, P. N. S.
Addinsell, H. M.
Adelson, Richard H.
Adkins, Leonard D.
Albright, Horace M.
Aldridge, Mrs. Walter H.
Alexander, Archibald G.
Alexander, Miss Helen D.
Allee, Mrs. John P.
Allega, Richard
Allen, Mrs. Charles, Sr.
Allen, Charles, Jr.
Allen, Ethan
Allen, Mrs. Ethan
Allen, Francis J.
Allen, Mrs. Frederick L.
Allen, John B. E.
Allen, Reginald
Anderson, Dr. Arthur F.
Anderson, George A.
Anderson, Mrs. Henry H.
Andrews, De Lano
Anthony, Mrs. Paul L.
Appel, Mrs. George I.
Appel, Miss Nancy
Appleton, Francis R., Jr.
Arkell, W. C.
Aron, Jack R.
Askin, Mrs. Arnold S.
Astley-Bell, L. A.
Astor, Mrs. Vincent
Atkins, Dr. Elisha
Atwood, Kimball C., Jr.
Ault, Mrs. Lee
Avildsen, Clarence
Ayer, Charles F.
Ayer, Charles J.
Babbott, Dr. Frank L.
Babcock, Robert O.
Bache, Harold L.
Bachrach, Clarence G.
Bacon, Rogers H.
Baker, Hugh B.
Baker, Walter C.
Ballard, Miss Amy Hope
Barach, Dr. Alvan L.
Bareiss, Mrs. Walter
Barnard, Chester I.
Barnes, H. H., Jr.
Barnes, Richard S.
Barry, William D.
Bartholomew, Dana T.
Bartram, Miss Evelyn
Bartram, Mrs. J. Burr
Bassett, Carroll K.
Bateson, E. Farrar, Jr.
Batterman, Henry L.
Bauer, Bernard
Baumann, Walter S.
Beach, Edwin E.
Beal, George J.

*Deceased

Beard, Anson
Beekman, Dr. Fenwick
Begrisch, William C.
Beinecke, Walter
Beller, William C.
Belmont, Mrs. August
Belth, Herman
Bennett, Mrs. George K.
Bennett, Mrs. Graham L.
Bennett, Walter C.
Bent, George Payne II
Bergerman, Melbourne
Berk, David
Berlin, Mrs. F. Henry, Jr.
Bernhard, Richard J.
Bernheim, George B.
Bernheim, Mrs. Henry J.
Berns, Charles A.
Bernuth, Charles M.
Biberman, David
Bieber, Siegfried
Blagden, Crawford
Blagden, Mrs. F. M.
Blair, Wiley, Jr.
Blick, John C.
Bliss, Anthony A.
Bliss, Miss Susan Dwight
Bloom, Mrs. William O.
Blume, Milton J.
Boettger, Theodore
Boggs, Dr. Robert
Bonney, Mrs. L. W.
Bontecou, Jesse M.
Boocock, Kenyon
Booth, Mrs. Robert C.
Borgstede, Miss J. Dorothy
Bourne, Miss Grace E.
Boylan, Mrs. Anne
Boyle, Gerald M.
Bradford, Mrs. Amory H.
Bradley, J. L.
Bradley, Montgomery S.
Braga, B. Rionda
Brandi, Frederic H.
Braunstein, Victor
Breed, Dr. Eben
Brenner, George A.
Breslin, Mrs. L. R., Jr.
Brewer, Mrs. George E., Jr.
Brewster, Benjamin
Brewster, Edward C.
Brewster, Mrs. Warren
Briggs, Miss Janet Zaph
Britwitz, Louis
Bruce, Mrs. Mellon
Bruckmann, John C.
Bryce, Mrs. John F. C.
Buckner, Mrs. W. G.
Bulkley, J. O.
Bull, Mrs. Ludlow
Bullock, Mrs. Hugh
Bunker, Arthur H.
Burbank, Kershaw
Burch, Lowell R.
Burden, Mrs. I. Townsend, Jr.
Burgard, Frederick W.
Burke, Mrs. Mary G.
Burlingham, Charles
Burns, H. S. M.
Burns, Mrs. Robert E.
Burton, Howes
Bush, Mrs. D. Fairfax
Butt, John D.
Butterworth, Frank, Jr.
Byng, Mrs. Henry G.
Callan, William
Camhi, Meyer
Campbell, Hilton R.
Campbell, Mrs. Joseph
Canfield, Cass
Caron, Kenneth
Cass, Charles Anderson
Cates, Louis S.
Chamberlain, George A.
Chamberlain, James R.
Chandler, Mrs. Percy M.
Chapin, Miss Cornelia Van A.
Chase, Hamilton M.
Cheevers, Dr. Owen J.
Chenery, Christopher T.
Chenery, Mrs. William L.
Chew, Mrs. Philip F.
Child, Miss Ruth Auchincloss
Choate, Mrs. Arthur O.
Choate, Arthur O., Jr.
Chubb, Hendon
Chubb, Mrs. Percy
Cioffi, Frank
Clark, Mrs. Blair
Clark, David C.
Clark, Mrs. Donaldson
Clark, James C.
Clark, Mrs. LeRoy
Clark, Mrs. Stephen C.
Clark, Mrs. William Andrews
Clarke, Mrs. Dumont
Clarkson, Jesse D.
Clarkson, Mrs. Robert L.
Clausen, George
Clayburgh, Mme. Alma
Clements, Theron A.
Coakley, Mrs. Henry B.
Cohane, John P.
Cohen, Morris
Cohn, Benno
Coleman, Leighton
Coleman, Stewart P.
Compton, Mrs. Randolph P.
Congdon, G. Maurice
Connelly, Albert R.
Conroy, Mrs. William H.
Cook, Mrs. Alfred A.
Cook, Dr. John S.
Cooper, Dr. Henry S. Fenimore
Corlies, Howard
Corning, Mrs. H. K.
Coykendall, Mrs. William E.
Crane, Mrs. Murray
Crawford, Frank Russell
Crispell, Reuben B.
Cromwell, Jarvis
Cromwell, Mrs. Livingston
Crookes, George D.
Cross, Dr. Richard J.
Cruger, Frederic H.
Cumming, C. N. Wentworth
Cumming, Mrs. Laurence
Curran, Mrs. Guernsey
Curren, Mrs. Jean A., Jr.
Currier, Mrs. Stephen
Curtis, Mrs. Edward P.
Cutting, Dr. Fulton
Dalia, Mrs. Joseph
Damrosch, Dr. Douglas S.
Darling, Jay N.
Darnell, Miss Linda
Darrow, Whitney
Dater, Mrs. Alfred W.
Davey, Miss Carolyn
Davies, Frederick M.
Davies, Mrs. J. Clarence
Davis, Miss Marion
Davis, Dr. William E.
Davisson, William Porter
Day, Clarence
Debevoise, Paul
Debevoise, Thomas M.
Delacorte, George T., Jr.
Delano, Mrs. Lyman
Desmond, Honorable Thomas C.

de Vegvar, Mrs. C. Neuman
Devereux, Alvin
Dick, John H.
Dick, Mrs. William K.
Dickey, Mrs. Charles D.
Dillon, C. Douglas
Dillon, Mrs. Clarence
Dodd, Miss Natalie M.
Dodge, Cleveland E.
Dodge, Donald D.
Dominick, Mrs. G. G.
Donaldson, Coleman duPont
Donnenfeld, Dr. Alvin M.
Dorland, Mrs. M. M.
Doubleday, James M.
Dougherty, William A.
Downey, John I.
Downs, Wilbur
Downs, Mrs. Wilbur
Drysdale, George R.
Duffy, Mrs. Marguerite E.
Duke, Miss Doris
Dumaresq, John E.
Du Nouy, Mrs. Lecomte
Du Pont, Henry F.
Du Pont, Irenee
Duvernoy, Russell E.
Dvorin, Bob
Dwight, Mrs. Winthrop E.
Eckart, Edmund
Eder, Phanor J.
Edmonds, Dean S.
Egan, Edward W.
Eggers, Mrs. Carl
Eisen, Dr. Nathan
Eisner, Gerald
Elliott, Mrs. John, Jr.
Elliott, Mrs. Osborn
Ellsworth, Duncan S.
Ellsworth, John S., Sr.
Ely, Mrs. G. Page
Emanuel, Henderson
Embury, Edward Coe
Engle, George D.
Erdmann, Dr. Albert J., Jr.
Erickson, Mrs. A. W.
Ernst, Howard M.
Erskine, Howard M.
Eskesen, Mrs. T. R.
Eustis, Allan C., Jr.
Evans, Mrs. Alice R.
Evans, Mrs. John C.
Evans, Mrs. L. T.
Fairchild, Mrs. L. W.
Farrell, James A., Jr.
Faulkner, Mrs. F. Sheffield
Ferenczy, Dr. Alexander, Jr.
Ferguson, Mrs. Florence R.
Ferguson, Miss Frances
Field, Malcom G.
Filley, Mrs. Oliver D.
Finneran, Edward T.
Fisher, Henry J.
Fitzhugh, Miss Marion E.
Flagg, W. A.
Flagg, Mrs. W. A.
Flandrau, Mrs. Blair
Flanigan, Horace C.
Fong, Dr. Harry Y.
Foote, Mrs. William
Ford, Mrs. Howeth T.
Fortunato, D.
Foster, Robert
Fowler, Miss Ann A.
Francescatti, Zino
Frank, William K.
Fraser, John
Frederick, Mrs. Leopold
Freeman, Mrs. Edward W.
Freese, Fred J.
Frick, Mrs. Henry Clay
Fromm, S. W.
Fry, Morton H.
Fuller, Samuel L.
Gales, Mrs. Seaton
Galpin, Samuel A.
Galpin, Mrs. Samuel A.
Gamble, Miss Anne Van N.
Gamble, Mrs. David S.
Gamble, Mrs. Sidney
Gambrill, Mrs. Richard
Gardiner, Mrs. Philip P.
Gardner, Mrs. Paul E.
Garner, Master Thomas F., Jr.
Garnjost, Mrs. Frederick W.
Garvan, Mrs. Francis P.
Gates, Mrs. Natalie
Gay, Edward R.
Gaylord, Robert M.
Geis, George F.
*Geise, Jacob H.
Gelsthorpe, Edward
Germond, Paul D.
Gibbons, Dr. Donald M.
Gieringer, Laurence T.
Gilbert, Mrs. Benjamin D.
Gilbert, Mrs. Fitch
Gillmore, Mrs. Henry van K.
Gimbel, Mrs. Bernard F.
Githens, Mrs. W. French
Gladstone, Julian
Glazier, Henry S., Jr.
Glazier, William S.
Golden, Mrs. Donn
Goldman, Richard S.
Goldsmith, C. E.
Goldsmith, Richard
Gonzales, Mrs. Julian C.
Goodwin, James L.
Goodyear, Mrs. A. C.
Gordon, Albert H.
Gordon, Mrs. A. H.
Gordon, Kermit
Grace, Mrs. David
Graf, William
Graff, Miss Lois Manton
Graham, E. B.
Graham, William J.
Graustein, Archibald R.
Graves, Duncan
Gray, Reginald
Gray, Mrs. Thomas H., Jr.
Green, Sheldon R.
Greenberg, Jerrold
Greenfield, Frederick Wm.
Greengold, Aaron
Greenleaf, L. S., Jr.
Gregg, Albert H.
*Grew, Mrs. Edward W.
Griffin, William J., Jr.
Grimson, Mrs. S. B.
Griswold, Mrs. John S.
Groedel, Harry
Groopman, Dr. Samuel F.
Grossman, Mrs. Cyrus B.
Grosvenor, Melville B.
Gudernatsch, Dr. F.
Gulick, Archibald A.
Gunster, Mrs. Joseph F.
Guthrie, Henry B.
Gwynne, Mrs. Arthur
Haas, George C.
Habif, Mrs. Elizabeth S.
Hadley, Morris
Hain, Andrew M.
Hale, Mrs. Roger D.
Hall, Mrs. John H.
Hallowell, N. Penrose
Halls, Mrs. William, Jr.
Halsband, Mrs. Robert
Halsted, Mrs. Harbeck
Hamann, Mrs. William A.

*Deceased

Hamblen, Harold E.
Hamill, Mrs. R. L.
Hamlin, Chauncey J.
Hampshire-Silver, Dr. Alice
Hansen, Arthur W.
Hanway, William A.
*Hardenbergh, Thomas E.
Hardy, Dr. Edward A.
Hardy, Brig. John H.
Harper, John
Harriman, Mrs. E. Roland
Harriman, Mrs. W. Averell
Harris, Charles C.
Harris, Duncan G.
Harrison, Mrs. Alfred C.
Hart, Stanley
Hartz, John E.
Hatch, Mrs. Harold A.
Hathaway, Stewart S.
Hatvany, Miss Antonia
Hatvany, Mrs. Fanny
Hauth, Herbert C.
Hays, Mrs. Edwin D.
Heimann, Mrs. Richard
Heineman, Bernard
Heintz, John E.
Heinz, H. J., II
Heinz, Mrs. H. J., II
Heller, Tobias
Heller, William B.
Heller, William G.
Helme, Edward
Henderson, Dr. Edward
Henshel, Mrs. Harry B.
Herr, Miss Mary E.
Herrick, Newbold L.
Hessberg, Edward K.
Hesse, Mrs. H. G.
Hesse, Miss Janet
Hewitt, Mrs. Thomas D.
Heyd, Dr. Charles Gordon
Heyman, Mrs. David M.
Higginson, Mrs. Thomas L.
Hillas, Miss Marjorie
Hills, Mrs. James M.
Hinrichs, Hans
Hird, Henry E.
Hird, Miss Martha
Hirshberg, Eliot P.
Hoff, Dr. Amanda
Hoffman, F. Burrall
Hoffman, John E.
Hoffman, William W.
Holbrook, Robert D.
Holmes, Carl
Holmes, Miss Helen M.
Holsapple, Earle T.
Homewood, Mrs. Brooke
Hooper, John W.
Houghton, Arthur A., Jr.
Howard, George H.
Howe, Dr. Calderon
Howell, W. Huntting
Hubbard, Allen S.
Hubbard Richard L.
Huffard, Paul P.
Humphreys, Miss Dena
Hun, Samuel Hand
Hunt, Mrs. Richard C.
Huntington, Mrs. Archer M.
Huntington, Miss Elizabeth Q.
Hutchins, Mrs. Waldo, Jr.
Hutton, Mrs. Edward
Hyman, Mrs. Abraham
Hyman, Harry A.
Hynson, Mrs. James N.
Igleheart, Austin S.
Immerblum, Mrs. Edward
Irwin, William F.
Isbrandtsen, Mrs. Gertrude M.
Iselin, O'Donnell
*Iselin, William O'D.
Isenberg, A. H.
Israel, Leon, Jr.
Isreeli, Jack
Jackson, Mrs. Clifford L.
Jackson, Mrs. David S.
Jackson, Frederick W.
Jacobi, Lester E.
Jacobs, Edwin L.
James, Mrs. Bayard
Jennings, Mrs. B. B.
Johnson, Ernest C.
Johnson, F. Raymond
Johnson, Rupert H.
Johnson, Mrs. Wayne
Jones, C. Maury
Jones, Clayton B.
Jones, Kenneth A.
Jones, Roy E.
Jones, Miss Ruth W.
Josephs, Mrs. Devereux C.
Judson, Miss Helen
Kaplan, M. C.
Katz, Al
Kean, Robert W., Jr.
Kean, Robert Winthrop
*Kenedy, Louis
Kennedy, Mrs. Arthur
Kennedy, Mrs. Mildred T.
Kent, Mrs. Richard Peabody
Kessler, Joseph N.
Kessler, Dr. Walter R.
Kienbusch, Carl O.
Kilborne, R. Stewart
Kim, William
Kimmel, Everett
King, Charles Glen
King, Frederick P.
Kingsford, Daniel
Kingsford, Irving B.
Kingsley, Darwin P., Jr.
Kinkead, Miss Jennie H.
Kinney, Mrs. Warren
Kirkham, Dr. Frederic T., Jr.
Kirkland, Mrs. William R., Jr.
Kissel, Mrs. W. Thorn
Kiuttu, Charles
Kleitz, William L.
Knaplund, Paul W.
Knapp, Dr. Philip
Kneeland, Mrs. Yale, Jr.
Knight, Dr. George H. H.
Knight, Mrs. Iris D.
Knight, Rufus H.
Knobloch, Henry F. J.
Knudsen, Th. R.
Kopelson, Mrs. Kenneth
Kosmak, Mrs. George W.
Kraemer, Alfred Robert
Kratovil, Mrs. Emil
Krumb, Henry
Lamont, Mrs. Corliss
Landeck, Walter V.
Lane, Mrs. William H.
Lanman, Dr. Jonathan T.
Laporsky, Dr. Arthur J.
Larkin, Frank Y.
Lauderdale, Dr. Vance, Jr.
Laughlin, Thomas I.
Lawrence, Mrs. James F.
Lea, Mrs. Robert Brooke
Leach, Henry Goddard
Lee, Mrs. Gypsy Rose
Lee, James T.
Leffingwell, Russell C.
Lehman, Mrs. Herbert H.
Leonhardt, F. H.

*Deceased

Leoni, Robert E.
Lerch, F. H., Jr.
Lester, Dr. Jane
Levey, Charles Bispham
Levey, Miss Margaret Bispham
Levi, Julian Clarence
Levin, N. W.
Levitt, Mrs. Edward T.
Levy, Dr. David M.
Lewis, George W.
Liberman, Mrs. James B.
Lidicker, William Z.
Lilly, Mrs. J. K.
Lincoln, Mrs. William A.
Linder, Harold F.
Linder, Dr. Jerome M.
Lippencott, Miss Janet S.
Litchfield, Edward S.
Livingston, Miss Anna P.
Livingston, John H.
Llavallol, Jaime
Lockwood, Luke B.
Loeb, Henry A.
Loeb, John L.
Logan, Miss Florence L.
Loomis, Mrs. Alfred Lee, Jr.
Lowell, Mrs. Frederick E.
Lowenstein, Leo
Lyeth, J. M. Richardson
Maass, Mrs. Richard
Madigan, Mrs. Thomas F.
Magid, Leon
Magie, James McCosh
Magrane, John S.
Mali, Mrs. Henry J.
Mallory, Mrs. Clifford D.
Manheim, Frank J.
Manice, Mrs. William DeForest
Marks, Carl
Marsteller, Miss L. Geraldine
Marston, Edgar J.
Martin, H. Bradley
Martin, Shelton E.
Martin, Mrs. Shelton E.
Martini, Mrs. Fred
Mathus, Dr. Francis T.
Matthews, Mrs. Flagler
Matthiessen, Erard A.
Maude, Mrs. E. F.
May, Mrs. Charles H.
Mayer, Mrs. Edgar
Mayer, John
Mayer, Mrs. John
Mayer, Mrs. John A.
Mayer, Myron
Maynard, Richard S.
Mazur, Mrs. Paul
Mazzia, Dr. Valentino D. B.
McAlpin, Rev. David H., Jr.
McCann, F. W.
McCann, Jonathan W.
McClintock, Gilbert S.
McClung, Richard G.
McCombs, Dr. A. P.
McCormack, Mrs. Alfred
McCormick, Miss Mildred
McCulloh, J. S.
McDonnell, Hubert
McElroy, Mrs. Thora Ronalds
McGee, Clifford W.
McGee, Paul Cushman
McIntosh, Allan J.
McKee, Robert E.
McKelvy, Mrs. Robert
McLane, Huntington
McLane, Mrs. Huntington
McNulty, Harold C.
Meade, George P.
Meagher, Edward C.
Mechin, R. J.
Meeder, William H., Jr.
Meek, Mrs. Samuel W.
Megear, Mrs. Thomas J.
Mellon, Miss Eleanor M.
Melville, Ward
Mendelsohn, Walter
*Merrill, Charles E.
Merrill, F. Hamilton, Jr.
Merritt, Mrs. Walter Gordon
Meyer, Maurice, Jr.
Migel, Richard H.
Miles, Mrs. E. W.
Miller, Roswell
Mills, Dudley H.
Milmine, Mrs. George P.
Milmine, Miss Katherine
Milton, Oliver M. B.
Minor, Mrs. Clark H.
Minotta, Miss Rita
Mobley, Nathan
Model, Mrs. Jean
Moench, Gerard L.
Mohun, C. Peabody
Montgomery, Mrs. Robert
Moore, Garry
Moore, George G., Jr.
Moore, Mrs. Louis De B.
Moose, Edward
Moran, Eugene F., Jr.
Morawetz, Herbert
Morehead, John M.
Morgan, Henry S.
Mosenthal, Mrs. Herman O.
Moses, Mrs. Henry L.
Moyer, Miss Eleanor
*Mueller, Miss Louise M.
Muir, Malcolm
Munroe, Miss Antonia
Myers, Mrs. Cornell
Myerson, Joseph G.
Mylod, Charles J.
Nehrbas, Harold A.
Nelkin, Morton
Nestel, Walter
Neuberger, Roy R.
Newburger, Com. Morton J.
Newton, Edward K.
Newton, Maurice
Nichols, Charles W., Jr.
Nichols, Mrs. Charles W., Jr.
Nichols, Mrs. George
Nichols, Mrs. Morton C.
Nicholson, Mrs. G. J. Guthrie
Nields, John W.
Nisselbaum, Charles B.
Noerr, Robert
Nourse, Mrs. Charles J.
Nyden, Gustaf A.
Nyselius, Gustav
O'Connell, Dr. William J.
Oeste, Miss Marion
Ogden, Dr. Herbert S.
Ohlandt, B. C.
Olmsted, Mrs. Henry C.
Ordway, Miss Ellen
Ordway, Miss Katharine
Osborn, Earl D.
Osborn, Mrs. Frederick
Osborn, Mrs. John J.
Osborne, Mrs. Dean C.
Osborne, John A.
Ostroga, Seymour
O'Sullivan, G. H.
Otto, Elmer C.
Outerbridge, Frank R.
Page, Robert G.
Paine, Hugh E.
Painter, Carl W.
Paley, William S.

*Deceased

Paley, Mrs. William S.
Parish, R. L.
Park, Ben
Parsons, Miss Katharine deB.
Peabody, Miss Amelia
Peabody, James Bishop
Pease, Perry R.
Peck, A. Wells
Peck, Mrs. Charles R.
Peck, Mrs. Samuel A.
Perkins, George W.
Perkins, Mrs. George W.
Perrin, Lester W.
Pforzheimer, Carl H.
Phipps, John S.
Pierrepont, John
Pierrepont, Mrs. R. Stuyvesant
Pierson, Henry L.
Pinney, Edward S.
Pitt, Mrs. Malcolm
Plimpton, Mrs. F. T. P.
Pollard, L. Douglas
Pool, Dr. Lawrence
Poor, Mrs. Walter S.
Porter, Hugh
Porter, Mrs. Lisa
Post, Mrs. John E.
Post, William G.
Potter, Warwick
Pottier, Auguste R.
Poveromo, Vito A.
Pratt, Auguste G.
Pratt, H. Irving
Pratt, John T., Jr.
Pratt, Richardson
Pratt, Mrs. Richardson
Pratt, Sherman
Prescott, Orville
Pruyn, Dr. F. Morgan
Puckhafer, George R.
Puzzo, Mrs. Martha
Quigly, Miss Elsie Jean
Radley, Mrs. John J.
Ramsing, Mrs. Thor H.
Randolph, Mrs. S. B.
Rasmus, William T.
Ratcliffe, George L.
Raynolds, Mrs. David R.
Reed, Mrs. Chester T.
Reisser, Dr. Otto H.
Rentschler, Mrs. Gordon S,
Revedin, Marchesa M.
Rice, Mrs. A. Hamilton
Richard, Mrs. Harold C.
Richards, Archibald M.
Richards, Mrs. Lloyd
Richardson, David L.
Riegel, Mrs. Benjamin DeWitt
Riley, Dr. Conrad M.
Riley Mrs. James W.
Ripley, James H.
Ripley, Julien A.
Ritchie, Alfred A.
Robb, Alexander F.
Roberts, George
Robinson, Edward
Rockefeller, William A.
Rodgers, William S. S.
Roessel, Mrs. M.
Roosevelt, Mrs. George E.
Rose, Alfred L.
Rose, Robert
Rosenfeld, Ernest
Roth, Mrs. William P.
Rous, Mrs. Arthur
Rowland, Benjamin, Jr.
Royster, Mrs. Thomas S., Jr.
Ruml, Mrs. B.
Rumsey, Charles C.
Rusk, Dean
Russell, Harry A.
Rutherfurd, Mrs. John
Sacco, Dr. Russell J.
Sadowsky, Carl R.
Santry, Joseph V.
Sargent, Miss Kathrine A.
Satin, Mrs. Martha
Saunders, Mrs. B. H.
Sawyer, Mrs. Albert E.
Scaife, Alan M.
Scales, Mrs. Mildred B.
Schenker, Dr. A.
Scherman, Mrs. Harry
Schimmelpfeng, H. W.
Schlesinger, Mrs. Edwin
Schlosberg, Richard
Schneider, Franz
Schneller, George O.
Schoenburg, Mrs. Peter
Scholle, William D.
Scholtz, Mrs. Janos
Schulte, Mrs. David A.
Schur, Ira A.
Schwarz, Miss Emily E.
Schwarz, Herbert F.
Scott, S. Spencer
Scott, Mrs. Stuart
Scribner, Charles T.
Scudder, Miss Antoinette Q.
Sears, Mrs. Henry
Sears, Henry F., Jr.
Secor, Master Nicholas T.
Sedgwick, Mrs. Francis M.
Selig, Mrs. R. F.
Sergievsky, Mrs. Boris
Seymour, Whitney N.
Sheffield, Frederick
Sheldon, Peter
Sheridan, Philip
Shey, Dr. Irving Alfred
Shookhoff, Howard B.
Sinclair, Mrs. Jennie H.
Singer, Arthur B.
Slaughter, Mrs. Charles
Slavic, Mrs. Fred
Smillie, Ralph
Smith, Francis M.
Smith, Miss Gertrude Robinson
Smith, Mrs. Hayden
Smith, Winthrop H., Jr.
Smithers, C. Francis
Smull, Mrs. J. Barstow
Snyder, Mrs. Frank V.
Sobel, Dr. Raymond
Sonfield, Charles
Spalding, Mrs. Albert
Spalding, M. Boardman
Speakman, Miss Russel
Speert, Mrs. Harold
Sperber, Miss Myrtle A.
Spier, Mrs. June Havoc
Spivack, Mrs. Sydney S.
Spooner, Ray Newhall
Sprague, Raymond
Stanley, Harold
Staub, Harry
Stawitz, Frederick J.
Stebbins, Mrs. Horace C.
Stebbins, Theodore E.
Stecher, Dr. Robert M.
Steiger, Harold
Stein, Dr. Kenneth E.
Stellar, Dr. Stanley
Sterling, Joseph S.
Sterling, Mrs. Robert D.
Stevens, Miss Viola G.
*Stewart, Miss G. Marieta
Stillman, Mrs. Jay
Stoddard, William

*Deceased

Stokes, J. G. Phelps
Stokes, Mrs. J. G. Phelps
Stotz, Norman I.
Stout, Mrs. Andrew V.
Stout, Dr. Arthur Purdy
Stover, Robert C.
Straub, Paul A.
Straus, Donald B.
Strauss, Mrs. Philip A.
Sturges, Mrs. Walter Knight, Jr.
Stuyvesant, Peter
Sudman, Victor J.
Sullivan, Mortimer S.
Sulzberger, Arthur Hays
Sulzberger, Mrs. Arthur Hays
Sulzberger, Dr. Marion B.
Surkamp, Arthur
Sutherland, Dr. Arthur M.
Swan, Mrs. Thomas W.
Swenson, S. R.
Swift, Mrs. Edward F., Jr.
Swift, Harold H.
Switz, Mrs. Paul F.
Swope, John
Symington, Charles J.
Szanto, Dr. Emery
Taggart, Mrs. Rush
*Talbott, H. E.
Tate, Mrs. H. Clinch
Taylor, Mrs. Henry C.
Taylor, Mrs. Read
Temple, Dr. H. L.
Terry, John T.
Thacher, Mrs. John S.
Thomas, Joseph A.
Thompson, Earle S.
Thompson, Mrs. Lewis S.
Thorne, Oakleigh L.
Timolat, James G., Jr.
Timolat, Louis K.
Titus, Robert R.
Titus, Mrs. Robert R.
Todd, Mrs. Russell W.
Tolstoy, Ilia A.
Tomlinson, R. E.
Tozzer, Mrs. Alfred M.
Tozzer, Mrs. Isabel Kellers
Tree, Ronald
Trimble, Mrs. M. Brown
*Tucker, Carll, Jr.
Tucker, Mrs. Carll
Tucker, Mrs. John
Tucker, Mrs. Nion
Tudor-Hart, Mrs. Percyval
Tully, Miss Alice
Tunney, Mrs. Gene
Turner, Mrs. Huntington M.
Turner, Lewis
Urban, Dr. Jerome A.
Van Allen, Miss Betsy
Vanderbilt, William H.
Vanderpoel, Mrs. Floyd L.
Van Dyke, Mrs. Tertius
Van Norden, Miss Margery L.
Van Orden, Miss Joan
Van Raalte, Arthur
Van Valey, Dr. Edwin C.
Van Vleck, Howard A.
Varona, Luis S., Jr.
Von Au, Mrs. Otto E.
von Hennig, Horst
von Meiss-Teuffen, Mrs. Hans
von Stade, Mrs. F. Skiddy
Vuilleumier, Dr. J. A.
Wachsmuth, Mrs. Ernest E.
Waddell, Mrs. Chauncey L.
Wagg, Mrs. Kenneth
Waggstaff, George B.
Wagstaff, Hunt T.
Walden, Ulysses D. E.
Waldes, Milo
Walker, Louis E.
Walker, Miss Miriam Dwight
Walton, Rudolph L.
Warburg, Mrs. Felix M.
Warburg, Frederick M.
Warburg, Paul Felix
Ward, Miss Winifred S.
Wardwell, Mrs. Edward R.
Warfield, Ethelbert
Warriner, Robert S.
Waterman, Robert E.
Waters, Mrs. F. S.
Watkins, John B.
Watson, Mrs. Jeannette
Watson, Mrs. Thomas J.
Weaver, Mrs. William B., Jr.
Webb, Mrs. Vanderbilt
Weber, Mrs. John J.
Webster, Dr. Jerome P.
Weems, F. C.
Weiden, Norman
Weil, Frank
Weinberg, Charles L.
Weisberg, Laurence B.
Welldon, Samuel A.
Wellington, C. Oliver
Wells, Dr. Gibson J.
Wentink, Mrs. J. G.
West, Mrs. Davenport
Whipple, Mrs. Taggart
Whitaker, George W.
White, Harold T., Jr.
White, Richardson, Jr.
White, Miss Shiela L.
*Whitman, Bret Harte, Jr.
Whitman, Gerald
Whitney, Mrs. Howard F., Sr.
Whitridge, Arnold
Whitridge, Mrs. Arnold
Wile, Edwin
Willetts, William P.
Willetts, Mrs. William P.
Williams, Dr. Byard
Williamson, Clifton P.
Wilmerding, Mrs. Lucius
Wilmerding, Lucius, Jr.
Wilson, Lou
Wilson, Orme
Wilson, Mrs. Paul E.
Windisch, Richard P.
*Winter, Dwight
Wolff, Henry J.
Woodward, Cedric R.
Woodward, Mrs. Julian L.
Woolf, Mrs. Louis J.
Worcester, Dean K.
Wrenn, Philip W., Jr.
*Wright, Mrs. Claire R.
Wright, John S.
Wurzbach, Dr. Frederick A., Jr.
Yohai, Morrie R.
Zelenko, Harry
Zepp, Dr. Clarence P., Jr.

*Deceased

Abbott, Mrs. Theodore J.
Abella, Luis, Jr.
Abeloff, Dr. Abram J.
Abrahams, Michael M.
Abrams, Mrs. Beverly W.
Achelis, John Fritz
Adams, Frederick B.
Adams, John B.
Adams, John C.
Adams, Mrs. Pierpont
Adams, Dr. Warren S.
Addison, William H.
Adler, Siegmund
Agathon, Oshin
Agnew, A. Gifford
Agnew, Cornelius R., Jr.
Ahearn, Mrs. Daniel S.
Aiken, Mrs. F. E.
Aitken, Dr. Gerard
Akston, Mrs. Joseph James
Aldrich, Miss Amey Owen
Alexander, A. B.
Alexandre, Miss Anna R.
Allen, Charles W.
*Allen, Mrs. Jean P.
Allentuck, Dr. Samuel
Allyn, Stanley C.
Alsleben, Alfred A.
Alsop, John
Alterman, Clifford B.
Altshuler, Mrs. Patricia
Ames, Ward
Amory, Mrs. George S.
Anderson, Douglas W.
Anderson, Lewis N.
Anderson, Mrs. William
Andrews, A. M., Jr.
Andrews, Dr. George C.
Andriesse, Albert
Ansbacher, D. A.
Apogi, Dr. Evelyn
Applebaum, Dr. Edmund
Arbus, Ralph
Armitage, Miss Flora
Armour, William
Armstrong, Dr. Edward McP.
Armstrong, Joseph R.
Arnheim, Alvin J.
Arnold, Miss Frances
Aronow, Joseph Mitchell
Aronson, Bernard
Asch, David
Askin, Seymour R.
Atwood, Mrs. Whitney Bourne
Auchincloss, C. C.
Auchincloss, Mrs. Hugh
Auerbach, Miss Barbara Ellen
Aufricht, Dr. Gustave
Austin, William A.
Averbeck, M. J., Jr.
Averett, Mrs. Elliott
Axler, Master Mitchell B.
Backus, Mrs. Dana C.
Bacon, Mrs. Robert Low
Baer, Sidney
Baer, William B.
Bahnsen, Mrs. Henry
Baker, Dr. Alice T.
Baker, Dr. Edward
Ball, Robert E.
Ballantine, Arthur A.
Ballard, Miss Lorinda
Ballentine, Mrs. Albert W.
Balsam, Michael
Bamberger, Henry
Bandes, Mrs. Herbert
Bangs, Francis N.
Barash, Mrs. Rosalyn
Barclay, Mrs. Reginald
Barker, Miss Elizabeth
Barlow, Mrs. S. L. M.
Barlow, William E.
Barnard, J. Augustus
Barnett, Arthur L.
Barnett, Mrs. Edgar
Barnett, Kenneth M.
Baron, Dr. Louis
Baronio, Franco A.
Barreto, Mrs. Blanche
Barrow, Mrs. Archibald
Barton, Mrs. S. G.
Basner, Austin E.
Bass, Dr. Murray H.
Bastedo, Mrs. Philip
Bastian, Dr. Robert
Battey, William Earle
Baylek, Dr. Thomas W.
Beach, C. A.
Beadel, Henry L.
Beadleston, Miss Edith
Beal, Mrs. Gerald F.
Beals, John D., Jr.
Beard, Stanley D.
Betchtel, Mrs. Edwin DeT.
Becker, Dr. E. Lovell
Becker, Edward L.
Bedichek, Mrs. B. G.
Bell, Mrs. A. L. Loomis, Jr.
Bell, Frank K.
Bellamy, Mrs. F. Wilder
Belmont, Lt. Joseph P.
Bender, Mrs. Morris B.
Benedict, Elliot S.
Benjamin, Mrs. William M.
Benkard, Franklin
Bennett, Lawrence
Bennett, Walter
Berch, Barnett
Berg, Mrs. Hunter
Bergamini, Dr. Herbert V. W.
Bergh, Philip
Berman, James K.
Bernecker, Mrs. Alberta H.
Bernecker, Miss Deloras
Bernheimer, Sidney G.
Bernstein, Jerome W.
Bertheau, Cesar J.
Best, Mrs. Charles B.
Bicher, Robert B.
Bierman, D. H.
Bigelow, Timothy
Binder, Edwin A.
Birch, Mrs. John F.
Bird, S. Hinman
Bird, Mrs. S. Hinman
Birdseye, Miss Mary Platt
Birnbaum, Martin
Bischoff, Miss E. May
Bissell, Mrs. George H.
Black, Miss Ellen E.
Blackham, Wilfrid
Blanco, Juan Carlos, Jr.
Blattner, Mrs. Adolph A.
Bliss, Mrs. Walter P.
Blodgett, Mrs. Thomas H.
Blond, Abraham
Bloomingdale, Samuel J.
Blossom, Mrs. Dudley S.
Blount, Robert E.
Blum, Paul
Blumenfeld, Dr. Emanuel
Blumenthal, Dr. R. R.
Blumenthal, Mrs. Sidney

*Deceased

Boardman, Mrs. Bradford
Boardman, Kenneth
Boardman, Mrs. Kenneth
Boardman, Miss Rosina C.
Bocher, Main
Bochow, Dr. George
Boegehold, Mrs. E. S.
Boissevain, Mrs. Adolphe
Bolz, Charles
Bond, Mrs. Stephen N.
Booth, Willis H.
Borden, Mrs. John C.
Borden, Richard
Bori, Miss Lucrezia
Borish, Mrs. M. E.
Bostwick, Dunbar W.
Bott, Mrs. George
Botzow, Mrs. William G. F.
Bouman, Mrs. Leonard F.
Bourne, Mrs. Robert C.
Bowers, Arthur
Boyce, Arthur C.
Boyer, Mrs. Philip
Braaten, Arthur P.
Brace, Mrs. Donald C.
Brady, Mrs. Bertha C.
Brady, Joseph
Brady, Mrs. Joseph
Braga, George A.
Brainard, Mrs. Voorhees
Brand, Mrs. Albert R.
Brassard, Dr. J. A.
Bratter, Edward M.
Bratter, Mrs. Edward M.
Breed, Dr. Charles N., Jr.
Bretherton, Mrs. Albert K.
Brice, Mrs. Helen E.
Brick, George H.
Bridgewater, Mrs. William
Briggs, Mrs. Bertha N.
Brody, Barnie
Brody, David A.
Brooks, Ernest, Jr.
Brooks, George A.
Brooks, Mrs. John
Brown, Charles S.
Brown, James M.
Brown, Robert A.
Brown, Vernon H.
Browne, Miss Frances
Browne, Gilbert G.
Bruce, Dr. Gordon M.
Bruell, Frederick
Brundin, Y. Pierre
Buchheister, Carl W.
Buck, Ellsworth B.
Buckley, Jere D.
Bucklin, Mrs. Harris H., Jr.
Bucky, Dr. Thomas Lee
Bugbee, Mrs. Henry G.
Bulkley, David T.
Bulkley, Mrs. David Todd
Bullock, Miss Elsie B.
Bullowa, Mrs. David M.
Buonocore, Catello H.
Burckardt, Miss Magdalena
Burke, John P.
Burden, James A.
Burden, Mrs. W. A. M.
Burdsall, Benjamin R.
Burger, Carl
Burgess, Thornton W.
Burlingame, Mrs. Frederic A.
Burlingham, Mrs. Charles
Burlingham, Charles C.
Burnett, Mrs. R. Peyton
Burns, Kenneth
Burpee, George W.
Burtnett, Robert C.
Burton, John H., 2nd
Busardo, James Francis
Bushnell, Mrs. Ericsson F.
Bussow, Carl
Butler, Mrs. Arthur W.
Butterworth, Mrs. F. S.
Byrne, Mrs. Robert M.
Cabot, Mrs. Francis H., Jr.
Caesar, Harry I.
Caesar, Henry A., II
Cafferty, Mrs. Martin
Cahners, Mrs. Fulton
Cain, Byron B., Jr.
Caire, Mrs. Laure C.
Caldwell, Mrs. Charles W.
Callahan, Mrs. Carmen V.
Callahan, Thomas V.
Cameron, Kirk L.
Cammann, Mrs. H. Schuyler
Camp, Frederic E.
Campbell, Dr. Eleanor A.
Campbell, Mrs. Marta P.
Cane, Melville H.
Canfield, Mrs. Cass
Cann, T. G. P.
Cannon, Mrs. Joseph M.
Caplin, Stuart
Capurso, Dr. George James
Cardillo, Dr. John
Carey, Andrew G., Jr.
Carey, Mrs. Andrew Galbraith
Carle, Mrs. R. W.
Carlisle, Mrs. John
Carpenter, Fairbank
Carpenter, William M.
Carroll, G. Wyman
Carroll, Philip A.
Carson, Mrs. J. Henry
Cary, Mrs. C. Reed
Casamajor, Dr. Louis
Casamajor, Miss Martha
Catalano, Nino J.
Cecil, Dr. Russell L.
Ceravolo, Lucydio Calio
Chamberlain, Percy J.
Chambers, Mrs. Robert A.
Chandler, William R.
Chase, Mrs. G. T.
Chase, Kenneth S.
Chauncey, Miss Emily
Chester, Mrs. Hawley T.
Chiang, Yee
Childs, Edward C.
Chisholm, Kenneth
Choate, Arthur O.
Choate, Miss Mabel
Christensen, Dr. L. R.
Christie, Lansdell K.
Chubb, James Parsons
Church, Austin
Church, Mrs. Charles T.
Church, Mrs. Willard
Chute, Miss Joy
Cizek, Dr. Louis J.
Clark, Mrs. Harold Benjamin
Clark, Harold T.
Clark, H. Huber
Clark, W. T.
Clarkson, Mrs. Christopher
Clayburgh, Mrs. A. H.
Cleghorn, Albert E.
Clement, Miss Leslie
Cleveland, Mrs. S. Park
Cloete, Stuart
Clowes, Miss M. H.
Clyde, William P.
Cobb, Boughton
Coffey, Miss Katherine
Cohen, Arthur J.
Cohen, Edward I.
Cohen, Emil

Cohen, Dr. Herbert George
Colbron, Miss Barbara
Cole, Charles H.
Cole, Dr. C. Monford
Coleman, Dr. Joseph A.
Colgate, Henry A.
Colgate, Mrs. John K.
Collier, Mrs. R. J.
Collins, Miss Elizabeth E.
Collins, Dr. Margaret C.
Colt, Harris D.
Colton, Toban H.
Comfort, Mrs. Lowell R.
Conde, Miss Corinne
Congdon, Lee
Connally, M. G.
Connick, Arthur E.
Coogan, Mrs. Jay
Cook, Mrs. Hobart
*Cooke, Carleton S.
Cooke, Mrs. Carleton S.
Cooke, Donald
Cooke, Thomas F.
Coolidge, Henry Parsons
Cooney, Mrs. Edwin W.
Cooper, Fred
Cooper, J. W.
Cooper, W. M.
Corbin, Mrs. John
Corbin, R. Beverley
Cormier, Francis
Corning, Miss Ursula
Correll, Mrs. James W.
Cortesi, Miss Katharine P.
Corwin, Saul C.
Costigan, Philip J.
Cottin, Jack
Coudert, Ferdinand W.
Coursen, Blair
Covo, Dr. Gabriel A.
Cowdin, J. Cheever
Cowles, William Sheffield
Cox, John L.
Cox, Joseph John
Cragin, Donald Wilson
Cramer, Dr. Joseph B.
Crawford, Mrs. Charles A.
Crawley, Mrs. John C.
Cresson, Mrs. William Penn
Crimmins, Miss Mary
Crimmins, Thomas
Crocker, George A.
Crockett, Christopher
Crohn, Mrs. Burrill B.
Cromwell, Mrs. Lincoln
Cronson, Dr. Alvin J.
Crouse, Master Timothy
Crowe, Ambassador Philip K.
Crowell, Dr. David L.
Crowley, Dr. Ralph M.
Crowninshield, Mrs. Francis B.
Cuddihy, Arthur B.
Cullman, Edgar M.
Cullman, Howard S.
Cullman, Mrs. Joseph F., Jr.
Curtis, Miss H. S.
Curtiss, Mrs. W. Perry, Jr.
Cushman, Paul
Cutler, Dr. A. M.
Czajkowski, Dr. Richard J.
Dailey, Mrs. Clarke G.
Dallett, Mrs. Frederic A.
Daltroff, Dr. Wilburta
Daly, D. Loughran
Dammann, Milton
Dana, Miss Mary H.
Daniels, Miss Julia
Daniels, Theodore L.
Danzig, Dr. Samuel D.
Darlington, Mrs. Herbert S.
Darrell, Norris
Daugharty, Miss Angela
Dauman, George
Davenport, Mrs. Frederick M., Jr.
Davenport, Henry J.
Davey, Miss Florence
Davidson, Miss Margaret
Davis, Joseph A., Jr.
Davis, Morgan
Davis, Robert M.
Davison, Mrs. Henry Pomeroy
Day, Watson Beach
Dearden, Miss E. C.
deBrun, Miss Else S.
De Carlo, Dr. Charles R.
De Cesare, John
de Coppet, Miss Gertrude
Deen, Darwin
Deering, Mrs. William R.
*Degener, John F., Jr.
deGersdorff, Mrs. C. C.
deGroot, Miss Adelaide M.
de Iongh, Mrs. D. Crena
de Kay, Mrs. Sidney
Delacorte, Albert P.
Delafield, Lewis L.
De Lamar, Miss Alice
Delaney, John B.
Delehanty, Thornton
Dembow, George F.
de Montmorin St. Herem, Comtesse
*Denby, Edwin H.
Dengler, Gregor D.
Dennison, Miss Diane
Denny, Miss Rose
de Piolenc, Mrs. Gerard
Derby, Mrs. Richard
De Rham, Mrs. Charles, Jr.
Despard, Clement L.
Detmer, Julian F.
Deutsch, Mrs. Richard
Devins, Mrs. Margaret
de Wasserman, Miss Annie R.
Diamond, Sidney A.
Dick, Mrs. F. R.
Dienst, H. C., Jr.
Dietz, Gerry J.
Dietz, Mrs. Howard
Dimond, Miss Elizabeth E.
Dimondstein, Mrs. Herbert
Dineen, Dr. Peter
Dinin, Dr. A. Philip
Di Santagnese, Miss Valerie
Disney, Walt
Dix, Mrs. John A.
Dix, Monroe L.
Dobkin, Mrs. Julius
Dodd, John B.
Dodge, Mrs. C. E.
Dolan, Dr. E. John
Dominick, Gayer G.
Dondero, Miss Marietta Joan
Dorr, John V. N.
Doscher, Mrs. Charles
Doubleday, G. Chester
Doubleday, George
Doubleday, Mrs. Nelson
Dougall, Arthur B.
Doughty, John C.
Douglas, Lewis W.
Doyle, Miss Patricia
Drake, Mrs. Orville G.
Draper, Paul A.
*Draper, Miss Ruth

*Deceased

Dreher, Elmer
Dresnick, Mrs. Natalie K.
Drimmer, Harold L.
Drohan, Mrs. William J.
Drowne, Mrs. H. Russell, Jr.
Duane, Mrs. Carolyn P.
Duane, John P.
Du Bois, Mrs. Arthur B.
Dubois, Randall M.
Dubovsky, Dr. Mortimer
Duff, George M., Jr.
Dumas, M. G.
Duncan, Stuart
Dunham, Mrs. Samuel G.
Dunning, John S.
Dunphrey, Robert F.
Durant, Mrs. Donald
Duryee, Samuel S.
Dutch, Miss Elizabeth
Dyer, Mrs. Horace
Earle, Miss Audrey V. E.
Easby, Mrs. Dudley T., Jr.
Eaton, David C.
Eberstadt, F.
Eckardt, Dr. Robert E.
Eckert, H. William
Edelman, Mrs. Albert
Edgar, James A.
Edgar, William
Edwards, John G.
Egan, Dr. George F.
Ehret, Harry W.
Ehrmann, Dr. Rudolf R.
Eidlitz, Mrs. Ernest Frederick
Eisenberg, Richard
Eisenmenger, Dr. William J.
Elinson, Dr. Jack
Elkind, Arthur H.
Ellenberg, Dr. Max
Elliman, Douglas L.
Elliot, Michael
Ellsworth, John E.
Elvidge, Dr. Arthur R.
Ely, Alfred, III
Embury, Mrs. Jane S.
Engel, Dr. Sol
English, Richard L.
English, William H., Jr.
Engstrom, C. William
Enrich, Mrs. Jules
Epstein, Dr. Jeanne
Epstein, Joseph
Erger, Dr. B. D.
Erlanger, Michael
Erlanger, Milton S.
Essman, Leonard J.
Estes, Thomas W.
Evans, Mrs. Morgan D., Jr.
Everett, Dr. A. Reginald
Everett, Henry J.
Everett, Miss Roberta
Ewart, Lady Talbot
Factor, Mrs. Elaine
Fagg, Charles C.
Faggella, Vincent J., Sr.
Fajans, Irving J.
Falconer, Miss Margaret
Falk, Myron S., Jr.
Faragoh, Miss Susan
Farber, George
Farber, Dr. I. J.
Farber, Dr. Saul J.
Farr, Dr. Charles E.
Farr, H. Bartow
Farr, John
Fassino, Dr. Anthony J.
Fawcett, Dr. Don W.
Fawcett, Reginald
Fay, Rev. John G., S.J.
Fay, Mrs. William Rodman
Feibush, Mrs. Joseph
Feinberg, Dr. Isadore
Feist, Seymour
Felberbaum, Dr. Alfred S.
Felderman, Dr. Ephraim J.
Feldman, Paul A.
Felsher, Hal-Curtis
Felton, Mrs. Cornelius C.
Ferber, Fred
Ferber, Dr. Robert
Ferrer, Mrs. J. M.
Feuer, Master Jed
Fiddler, Robert W.
Field, Dr. William W.
°Fincke, Reginald
Fincke, Mrs. Reginald
Findley, Paul B.
Fine, Alexander
Finkel, Leonard E.
Finkle, Joel
Fishman, Irving
Fisk, Mrs. Shirley C.
Fitzhugh, J. Perry
Fitzpatrick, Paul
Flagg, Mrs. S. Griswold
Flatau, Martin
Fleischer, Herbert E.
Fleischmann, Mrs. Udo M.
Fleissig, Miss Rosalie
Fluekiger, Miss Dora Whitman
Foley, George W.
Fondiller, Mrs. Richard
Forbes, John Ripley
Ford, Henry W.
Ford, Sumner
Forscher, Martin
Forster, Mrs. Jo Ann
Forsyth, Miss Adele G.
Forsyth, Mrs. Harry
Fortner, Dr. Joseph G.
Fosdick, Mrs. Paulding
Foss, Mrs. Wilson P., III
Foster, Dr. William J.
Foulke, Mrs. Roy A.
Fowler, Miss Agnes
Fowler, James A., III
Fowler, Mrs. Lewis M.
Fox, Miss Alice Bleecker
Fox, E. Tunnicliff
Fox, Kelly
Fox, Master Michael
Fox, Master Ralph
Friar, Wayne F.
Francescatti, Mrs. Yolande
Frank, Alexander
Frank, Charles
Frank, Mrs. Emma O.
Frank, Dr. Richard L.
Franken, Mrs. Edith T.
Franklin, Curtis
Franklin, Joseph K.
Franzen, Mrs. Ulrich J.
Fraser, George C.
Frederick, Karl T.
Freed, Dr. Arnold
Freed, Mrs. Arthur
Freed, H. W.
Freeman, Miss Gladys M.
Freiden, Jesse
Freidson, Eliot
Fricke, Mrs. D. Carl
Friedlaender, Mrs. Helmut N.
Friedman, Dr. Alexander L.
Frissel, Miss Toni
Frost, Frederick G., Jr.
Frost, John W.
Frothingham, William I.
Fuchs, Arthur

°*Deceased*

Fulton, R. Arthur
Fulton, Robert A., Jr.
Funk, Wilfred
Furst, Dr. Joseph B.
Futuyma, Douglas Joel
Gadebusch, Paul H.
Gaillard, William D.
Gair, Mrs. Robert
Gaisman, Henry J.
Gale, C. Herbert
Gale, Mrs. Dermot W.
Galland, Ned K.
Gallatin, Mrs. Albert
Gallatin, Goelet
Galm, John
Gamble, Edwin F.
Garofolo, Peter
Gauss, Mrs. D. Christian
Gaver, Gordon P.
Gavin, Mrs. Michael
Gayley, H. Clifford
Geddes, Eugene M.
Geddes, Gerald
Geer, Dr. Francis G.
Geer, Mrs. Langdon
Gehrmann, William H.
Gendel, Dr. Edward
Gengler, Mrs. Arthur
Genth, William T.
Gerard, Dr. Donald L.
Gerber, Julius
Gerngross, Leo
Gersen, George H.
Gibbons, Douglas
Gibson, Charles D. W.
Gibson, Mrs. Harvey D.
Gilder, Mrs. Rodman, Jr.
Gillen, Harold W.
Gilleran, Carroll
Gilliard, E. Thomas
Gillmor, Wiley G.
Gimbel, Bernard F.
Gimbel, Mrs. Louis S., Jr.
Ginsberg, Robert K.
Githens, W. French
Gladstone, Arthur A.
Glazier, Mrs. Henry S.
Gleason, James L., Jr.
Goddard, Miss Jessamine
Goddard, Mrs. Morrill
Godwin, Miss E. L.
Godwin, Frederick M.
Goetsch, Mrs. John B.
Goetz, James C.
Goldfarb, Dr. Norman
Goldin, Mervin J.
Goldmark, Dr. Carl, Jr.
Goldrich, Dr. Nathaniel
Goldschmidt, Mrs. Carel
Goldsmith, Mrs. Milton M.
Goldsmith, Robert L.
Goldstein, Mitchell
Goodbody, Mrs. M. F., Jr.
Goodell, Raymond B.
Goodfriend, Dr. Milton J.
Goodhue, Mrs. Charles E.
Goodkind, Henry M.
Goodman, Avrom
Goodman, Mrs. Herbert S.
Goodman, Mrs. Joseph
Goodman, Dr. Soll
Goodyear, A. C.
Gordan, Mrs. John D.
Gorzka, Andre Stephen
Gott, Rodney C.
Grace, Oliver R.
Grady, Mrs. H. A., Jr.
Graeffe, Edward
Graff, Howard
Graham, Dr. John C.
Grant, David E.
Grant, L. J.
Green, Herbert, Jr.
Green, Richard E.
Greenawalt, Kenneth W.
Greenspan, Philip
Gregg, Peter A.
Grenard, Steve
Gresser, William
Gretsch, Mrs. William
Grier, Miss Lois M.
Griffin, William V.
Grigsby, Miss Susanne
Grillo, Paul
Grinnell, Lawrence I.
Grinnell, Dr. Robert S.
Griscom, Mrs. Clement A.
Grodenchik, Irving
Groesbeck, Mrs. Herbert
Grose, Waldo
Gross, Bernard
Gross, Max
Grosvenor, William
Groth, Edward, Jr.
Grout, Mrs. H. McIntyre, Jr.
Gruber, Mrs. Maurice
Gruntal, Benedict H.
Gunnison, Mrs. R. M.
Gustafson, Robert L.
Gutermuth, C. R.
Gutman, DeWitt
Guttelman, Dr. Adeline S.
Guttmacher, Dr. Alan F.
Guy, Dr. Loren P.
Gwynne, Alfred P.
Haberman, Mrs. Phillip, Jr.
Hack, Randall
Hahr, Walter
Haight, Mrs. Sherman Post
Haldt, Harry Peale
Haldt, Mrs. Harry Peale, Sr.
Hall, Miss Adele
Hallenborg, Mrs. Charles
Halleran, Mrs. Arthur J.
Halpern, Dr. Alfred
Halpryn, Louis Joel
Halsted, Miss Marie L. G.
Hamburger, Mrs. Philip
Hamershlag, Robert J.
Hamilton, Sherwood
Hammett, Dr. John E.
Hammond, Henry D.
Hammond, Mrs. John Henry
Hammond, Miss Natalie Hays
Hammond, Paul
Handelsman, Dr. Jacob R.
Handy, Truman P.
Hansen, Mrs. Helen W.
Hard, Mrs. De Courcy L.
Hard, Miss Susan
Harding, William Barclay
*Hardy, Charles J.
Harper, L. K., 3rd
Harris, Allen
Harris, Mrs. Ben Jorj
Harris, Mrs. Duncan G.
Harris, John D.
Harris, Mrs. John W.
Harris, Roger D.
*Harrison, John P. S.
Hart, Mrs. A. S.
Harvey, Dr. E. Newton
Harvey, Mrs. Harold D.
Harwick, Harry J.
Hasbrook, Mrs. Sunset B.
Haskell, Amory L.
Haskins, Mrs. Caryl P.
Hasse, Miss Claryce P.
Hatch, Waldo M.
Hauswirth, Dr. Louis
Havemeier, Alfred F. J.

*Deceased

Havemeyer, Henry O.
Havender, Joseph, Jr.
Hawkins, Dexter C.
Hay, Clarence L.
Haynes, Raymond B.
Hayward, Dr. Emeline Place
Hazeltine, Dr. Alan
Healy, Mrs. John H.
Hearst, John R.
Hechinger, Mrs. Sidney
Hecker, Mrs. Frances
Heckman, Charles W.
Heidsieck, Mrs. E. John
Heinsheimer, Mrs. Norbert
Heller, Albert E.
Heller, Dr. John H.
Heminway, John H.
Hemley, Dr. Samuel
Hendelson, William
Henderson, Alexander I.
Herman, Dr. John R.
Hernstadt, William L.
Hess, Mrs. Alfred F.
Hess, Mortimer H.
Hess, Mrs. Thomas B.
Hessel, Sidney A.
Hewins, Miss Elizabeth L.
Heyde, Ernest R.
Heydt, Charles E.
Heymsfeld, Ralph T.
Hickox, Charles V.
Hilfer, Mrs. Harry
Hill, E. B.
Hill, Mrs. Martin
*Hillas, Robert M.
Hinman, Mrs. Edward
Hirsch, Thomas
Hirsch, Mrs. Walter A.
Hirschhorn, Mrs. C. H.
Hirshon, Mrs. Walter
Hirt, Miss Elizabeth
Hitchcock, Mrs. Ethan A.
Hitchcock, Horace G.
Hitchcock, Mrs. Thomas
Hobson, Miss Katherine Thayer
Hochmuth, Raymond
Hoff, Miss Ruth
Hoffman, Miss Sally
Hoffman, Mrs. William W.
Hoffmann, Miss Eleanor
Hoffmann, Mrs. John
Hoffmann, Dr. Richard H.
Hofheimer, Joseph
Holding, Mrs. Archibald M.
Hollerith, Miss Natalie
Hollins, Robert L.
Hollister, Mrs. Frederick K.
Holmes, Dr. Hilary H.
Holton, Charles W.
Hopkins, Mrs. Peter S.
Hopper, Miss Nathalie
Hopson, Dr. George H.
Horn, Adam J.
Horn, John
Horn, Stephen I.
Horowitz, Jerome
Horowitz, Mrs. Rita
Horowitz, Seymour
Hotchkiss, Edwin L.
Houston, Miss Jessie F.
Hoving, Walter
Howard, Mrs. Howell
Howard, Mrs. Oscar
Howell, Mrs. Edward W.
Howley, Thomas
Hoyer, Frans
Hoyt, Mrs. Lydig
Hubbard, William H.
Hubbs, Clark
Hudson, Mrs. Lea
Huffman, Mrs. Moore P.
Huguley, Mrs. Arthur W., Jr.
Hull, Mrs. Cora A.
Hull, Mrs. Lytle
Humphreys, Mrs. G. H., 2nd
Hunnewell, Arnold W.
Hunt, Mrs. Barron
Hunt, Roy A.
Hunter, Mrs. James H.
Huntington, Miss Catherine C.
Hurdman, John C.
Hurley, James S.
Hurwitt, Robert
Hutner, Bernie
Hutton, Mrs. Alice P.
Hutton, Mrs. Hubert E.
Hyman, Dr. A.
Ijams, Mrs. J. Horton
Ingersoll, Mrs. R. V.
Ireland, Rufus J., Jr.
Irving, Michael
Isaacs, Stanley M.
Isaacson, Miss Mollie-Jane
Iselin, Lewis
Iselin, Mrs. Lewis
Iselin, Miss Louise M.
Iselin, Mrs. William O'D.
Iseman, Harold M.
Jackson, John G.
Jackson, Harrison Sanford
Jackson, Miss Lorraine
Jackson, William E.
Jacobs, Stanley R.
Jacobus, David D.
Jaffe, Herman
James, Mrs. Henry
Jameson, Edwin C., Jr.
Jaques, Mrs. George W.
Jehl, Dr. Joseph R.
Jenks, Mrs. Robert I.
Jensen, Miss Margaret I.
Jeppson, Dr. Janet
Jessup, Everett C.
Jezer, Dr. Abraham
John, John P.
Johnson, J. Ford
Johnson, Stephen Andrew
Johnson, T. T.
Johnston, Scott
Jones, Mrs. Charles
Jones, Master David
Jones, Mrs. E. Powis
Jones, Herman LeRoy, Jr
Jones, Marvin L.
Jordan, Thomas V.
Joy, Frederick van B.
Judge, Mrs. James, Sr.
Judson, Clay
Julius, Mrs. Richard B.
Jurka, Dr. Charles E.
Juta, Jan
Kadane, David K.
*Kagan, Leo B.
Kahn, Dr. Arthur R.
Kahn, Gilbert Sherburne
Kahn, Walter N.
Kamholtz, Dr. Theodore
Kane, Charles B.
Karelsen, Frank E.
Karlsson, John D.
Karmin, Dr. Leo R.
Kaskoun, Mrs. Doris
Kastor, Mrs. Hugo
Katzenstein, Mrs. Thea
Kaufman, William B.
Kavesh, Mrs. Robert
Kayser, Miss Ruth
Keehn, Grant

*Deceased

Keeshan, Mrs. John W.
Kelley, Nicholas
Kellogg, Mrs. Francis L.
Kellogg, Mrs. Frederic R.
Kelly, Thomas Smith
Kennerley, Mitchell, Jr.
Kerlin, Gilbert
Ketcham, E. C.
Kilham, Miss Teresa
Kimball, Keith Allyn
Kimberg, Mrs. Irene
Kindler, Albert
Kinne, Russ
Kinzig, John
Kirkham, William B.
Kirshen, Philip H.
Kitchen, Herman W.
Klaussmann, Eric K.
*Klein, D. Emil
Klein, Mrs. D. Emil
Klein, Norman S.
Klein, Mrs. William M.
Kleinfeld, Dr. Louis
Kleinfeld, Dr. Morris
Klemens, Miss Edith
Klingenstein, Joseph
Klingenstein, Dr. Percy
Klingmann, Albert
Knight, Mrs. Augustus S.
Knowlton, Mrs. Christine S.
Knutson, Mrs. R. J. F.
Koch, Edward R.
Koloski, Bruce
Kopf, Joseph L.
Korn, Harold
Kornblum, Ira
Kotkin, Dr. Sheldon
Kraft, Dr. Lisbeth M.
Kramer, Joel
Kranz, Dr. Karl
Krasnow, Kenneth
Krause, Mrs. Rosalie V.
Krebs, Francis Jerome
Krech, Mrs. Shepard
*Krezek, K. M.
Kritz, Mrs. David
Krueger, Richard G.
Kynaston, Mrs. Percy L.
Lachman, Mrs. Gerard
Ladd, R. J.
Lamb, Dr. A. R., Jr.
Lamb, Mrs. Gilbert B.
Lambert, Dr. Adrian
Lande, George
Landis, Kendall
Lane, Dr. Robert A.
Lang, Miss Matilda F.
Lang, Victor A.
Lange, Mrs. Arthur N.
Langmann, Dr. Alfred G.
Lanyon, Wesley E.
Laragh, Dr. John H.
Larkin, Dr. Vincent
Larsen, Karl
Laszlo, Dr. Andras E.
Lattin, C. Parker
Law, Frederick G.
Lawrance, Mrs. Charles L.
Lawrence, Mrs. Arthur B.
Lawrence, Charles C.
Laykind, Mrs. Henry G.
Lazzarini, Dr. A. A., Jr.
Leahy, John W.
Leavenworth, Miss Helen Ann
Leavenworth, Mrs. Ellis W.
Lee, Horace N.
Leff, Herbert Wilson
Lefferts, Mrs. Barent
Lefferts, Mrs. Gillet
Leidesdorf, S. D.
Leland, Miss Anne Bronson
Lembke, Mrs. Arthur
Lenley, Mrs. Jay E.
Lenley, Miss Sara
Leo, Jack G.
Le Roy, Edward A., Jr.
Lesser, Steven Dean
Levas, George N.
Leventhal, Dr. J. M.
Levin, Wilbur
Levine, Mrs. Milton
Levinson, Morris L.
Levy, Abraham D.
Levy, Mrs. B. J.
Lewine, Robert W.
Lewis, Madison H.
Lewis, Mrs. R. E. L., Jr.
Lewis, Mrs. Robert J.
Lieberman, Dr. Samuel
Liebler, Walter D.
Liebman, Julius
Liebowitz, Benjamin
Lievow, William
Light, Dr. Irving
Lilienthal, Howard L.
Lincoln, Mrs. Frederick W.
Lind, Dr. Arthur
Lindemann, Roland
Lindey, Alexander
Lione, Dr. James G.
Lipman, Mrs. Walter L.
Lister, Miss Geraldine T.
Litchfield, Lawrence, 3rd
Littlejohn, Mrs. Hugh
Littwitz, Alvin W.
Livingston, Miss Angelica
Livingston, Master Michael Pardo
Localio, Dr. S. Arthur
Locke, Otto Martin
Lockett, Arthur H.
Lockwood, William A.
Lombard, James M.
Lang, Raymond Kingsley
Longstreth, Mrs. N. Lucas
Longworth, Mrs. Nicholas
Lorch, Arthur E.
Lord, Walter
Lovejoy, Thomas E., III
Lovett, Mrs. Robert A.
Low, David
Low, Miss Harriette
Low, Mrs. Madeleine M.
Low, Mrs. Marianne H.
Lowe, Jonathan S.
Lowing, Mrs. Celia Smith
Lowman, Lawrence W.
Lowther, Mrs. Florence deL
Lubkin, Dr. Virginia
Lucas, William D.
Ludwig, Jesse J.
Lueder, C. G.
Lumb, Dr. Charles L.
Lundgren, Mrs. Charles
Lunenfeld, Norman
Lunt, Storer
Luwisch, Dr. Joachim
Lyon, Alfred E.
Lyon, Miss Ruth
Lyons, Mrs. G. Jarvis
MacArt, Miss Judith Ann
*MacDonald, Henry
MacDonald, Mrs. Henry
Macdonald, Mrs. Ronald, Jr.
Mack, Mrs. Walter S.
MacKay, Dr. Kenneth C.
MacLaury, Mrs. Robert M.
Macomber, Edward S.
Maeder, Mrs. John S.
Maffi, Mario

*Deceased

Magnes, Master Jeffy
Mahony, Mrs. Marie A.
Maisel, Master William Mendes
Maller, Dr. J. William
Mallett, George A.
Mallinson, Hiram R.
Maly, George
Manecke, Dr. Phillipp, Jr.
Maneely, Edward F.
Mangiardi, Dr. Joseph L.
Mann, Alan N.
Manning, James H.
Manny, W. Roy
Manship, Paul
Marchisello, Dr. Peter J.
Markel, Lester
Marks, Arthur W.
Marks, Miss Barbara Edna
Marsh, Alonzo K.
Marshall, Miss Edith G.
Marshall, Louis
Marsters, Mrs. Arthur A.
Marston, Hunter S.
Martin, Dr. Adeline W.
Martin, Alastair B.
Martin, Bradley
Martin, Miss Elizabeth P.
Martin, Mrs. Grinnell
Martin, Mrs. Raymond K.
*Marvin, Langdon P.
Marvin, Mrs. Langdon P.
Maske, Gunnar
Mason, L. Randolph
Massey, Mrs. B. P.
Mathers, Dr. James A. L.
Mathers, William H.
Mander, Jack G.
Maurice, Mrs. Jane H.
Maxwell, James K.
Mayer, Harold C.
Mayer, Mrs. William C.
Maynard, Mrs. Eric M.
Maynard, Mrs. Walter
Mazer, Dr. Milton
McAlpin, Mrs. Allan H., Jr.
McAlpin, Miss Dorothy P.
McAneny, Mrs. George
McCabe, Frank E.
McCaffrey, Eugene R.
McCaffrey, James John
McCance, Mrs. Thomas
McCandless, Mrs. William
McCanliss, Lee
McClure, Dr. H. Elliott
McCurdy, Mrs. J. Arrison, 2nd
McFadden, Louis E.
McGrath, F. Sims
McGrath, Dr. James B.
McGuckin, B. F.
McKay, Mrs. Robert G.
McKean, John F.
McKee, Dr. Margaret Harper
McKenzie, Mrs. W. M.
McKittrick, Thomas H.
McLaughlin, Dr. John J. A.
McQuillen, Paul W.
McVeigh, Charles S.
McVeigh, Mrs. Charles S.
McVickar, H. Kane
Mead, Giles W., Jr.
Medina, Harold R.
Meeker, Mrs. Robert D. C.
Meilman, Dr. Edward
Mellon, Charles Henry
Meltzer, Henry
Menary, Robert V.
Mendell, Mrs. Margaret P.
Mendelson, Herbert
Merrill, Mrs. Pauline G. W.
Merritt, Dr. Katharine
Merry, Mrs. N. A.
Merton, Mrs. Richard G.
Messer, Dr. Alfred A.
Messer, Dr. Henry D.
Messmann, Mrs. John J.
Metzler, Henry W.
Meyer, Adam
Meyer, Eugene
Meyer, George L.
Meyer, J. Edward
Meyers, Fred
Michaels, Dr. I. T.
Michaelson, Master Richard H.
Michalis, Clarence G.
Michelbacher, G. F.
Midinian, Mrs. S. H.
Milbank, Robert W.
Milch, Ernest M.
Miles, Sanford
*Miller, C. Blackburn
Miller, Mrs. C. Blackburn
Miller, Lawrence McK.
Miller, Nathan
Miller, Mrs. Ralph R., Jr.
Millhiser, Mrs. Clarence
Mills, R. C.
Mills, Steve
Milner, Richard
Miner, Mrs. Eunice Thomas
Minervini, Alfred P.
Mink, Dr. Solomon J.
Minster, Walling
Misler, Samuel
Mitchell, Mrs. Ashmore L. L.
Mitchell, Cornelius
Mitchell, George A.
Mitchell, Mrs. J. Murray
Mitchell, John D.
Mitchell, Mrs. S. Roger
Mittler, Miss Marilyn
Mizelle, Mrs. Jesse C., Jr.
Mochi, Ugo
Mol, A. A.
Molleson, George A.
Molnar, Nicholas M.
Montague, Dr. Joseph F.
Moody, Harry A., Jr.
Moore, Mrs. Edward S., Jr.
Moore, John I.
Moore, Mrs. S. W.
Moran, Eugene F.
*Morawetz, Mrs. Victor
Morgan, Alexander P.
Morgan, Junius S.
Morgan, Robert W.
Morrel, Dr. Norman
*Morris, Rev. Dr. DuBois S.
Morris, Dr. Robert H.
Morrison, Mrs. Charles King
Morse, Edward
Mortimer, Mrs. Stanley G., Jr.
Moses, Dr. Leon
Mosle, Mrs. A. Henry
Moulton, Francis S.
Moulton, Henry H.
Mountain, Worrall F., Jr.
Mullaney, Eugene L.
Muller, Miss Elizabeth
Mulroney, Thomas M.
Mulwitz, Mrs. Saul
Muma, John R.
Mumford, George S., Jr.
Mumford, Dr. R. S.
Munn, Ector O.
Munro, Alan
Munroe, Mrs. Vernon, Jr.
Munson, Lt. Charles C.
Murphey, Dr. James S.

*Deceased

Murphy, Mrs. Joanna J.
Murphy, Mrs. John E. B.
Murray, Mrs. Edward E.
Murray, Miss Eleanor
Murray, Matthew J.
*Muschenheim, Fred A.
Myrick, Mrs. Julian S.
Nachtigall, Dr. Henry B.
Nagl, George F.
Naidamast, Daniel
Namm, Mrs. Benjamin H.
Nast, Mrs. Ilse
Naumberg, Mrs. George W., Jr.
Nayfack, Bertram S.
Nazar, Francisco
Nelkin, Miss Noel L.
Nelson, Henry C.
Nelson, Dr. Theodora
Nesmith, Col. James, 2nd
Newburger, Alfred H.
Newell, Mrs. Edward T.
Newhall, Donald V.
Newton, Howard M.
Newton, William L., Jr.
Nickelsberg, Miss Elaine M.
Nickerson, Major Hoffman
Nickou, Constantine
Nolan, William J., Jr.
Nordlicht, Dr. Stephen
North, Mrs. Richard A.
Northrup, Dr. Jane
Noyes, Mrs. Dorothy Grinnell
Nuhn, Mrs. Clifford J.
Oak, Miss Dorothy
Oakes, Mrs. Malcolm
Oakley, Mrs. H. Wayne
Oakley, Mrs. R. Lawrence
Oastler, Mrs. Frank R.
Oberrender, Dr. Girard F.
Oberwetter, Manro T.
O'Brien, Morgan J., Jr.
O'Connell, Dr. C. Paul
O'Connor, Mrs. Ethel A.
O'Connor, Theodore G.
Oenslager, Donald M.
Oestricher, Sylvan
Offerman, John
Ogden, Mrs. Leslie
*Ogilvie, W. E.
Olds, Mrs. Robert E.
Olsen, Frederick Svend
O'Neill, George D., Jr.
O'Neill, Thomas F.
Oppenheimer, Daniel J.
Orentreich, Dr. Norman
Oresman, A. Louis
Ortner, Louis M.
Orvis, Mrs. Hardin
Osborne, Carl N.
Osborne, Lithgow
Osborne, Dr. Melville W.
Oshima, Robert Rinzo
Otheman, Roswell C.
Ottenberg, James S.
Oustecky, Otto
Pack, Mrs. Howard M.
Paddock, Mrs. William A.
Page, Miss Ione
Page, Nelson L.
Pagenstecher, Miss Bertha
Paige, Mrs. Douglas
Paine, Richard C.
Palazzo, Robert
Palmer, Mrs. Carleton H.
Papazian, Dr. Haig P.
Park, A. Brock
Park, Mrs. H. Halsted
Parker, Rev. Everett C.
Parker, George P., Jr.
Parkinson, Mrs. John, Jr.
Parmelee, Miss Alice
Parmelee, Miss Elizabeth
Parr, F. Van S., Jr.
Parsons, Dr. Herbert
Parsons, Mrs. J. Graham
Parsons, Dr. William Barclay
Pasternak, Mrs. H. D.
Paton, Dr. R. Townley
Patterson, Dr. Russel H.
Paul, Charles
Paul-Wilcox, Miss Iris J.
Payson, Mrs. Charles S.
Pearce, Dr. John M.
Peck, Stephen Rogers
Pelz, Edward J.
Pennoyer, Mrs. Paul G.
Pennoyer, Mrs. Paul G., Jr.
Perotti, Mrs. Meda A.
Perron, Joseph
Perry, Miss Elaine
Peters, Dr. Frank H.
Petrucelly, Mrs. V.
Pezzullo, Joseph John
Pfeiffer, Timothy N.
Phelps, William H., Jr.
Philipp, Mrs. Stone
Phillips, Dr. Walter
Pickman, Dudley L., Jr.
Pierce, Allen
Pierce, Miss Elizabeth Gay
Pierce, Mrs. Henry B.
Pierpont, Mrs. John H.
Piltz, George V.
Pinkerton, Robert A.
Pintauro, Dr. F.
Pioselli, Mrs. Alice B.
Pisani, Master George R.
Place, Mrs. Hermann G.
Platt, Mrs. Frank H.
Platt, Livingston
Plohn, Charles
Poe, Miss Frances
Polay, N.
Pologe, Mrs. Irving S.
Pomeroy, Daniel E.
Pons, Lily
Porter, Mrs. Cheever
Porter, Mrs. N. V.
Post, Miss Evelyn A.
Potavin, Edward
Potter, Bronson M.
Potter, Henry C.
Potter, L. De Grove
Potter, Miss Mary G.
Potts, William R.
Pough, Richard H.
Powers, Francis C.
Powers, Mrs. Helen L.
Powers, Joshua B.
Pratt, Mrs. Frederic R.
Pratt, Mrs. Harold I.
Pratt, Mrs. John T.
Prausnitz, Dr. Hans F.
Prentis, Edmund A.
Prentiss, Marshall
Prentiss, Mrs. Marshall
Price, Gottlieb
Price, Miss Mary Lyle
Price, Samuel
Prigoff, Mrs. James
Prince, Richard
Pruzan, Mrs. Max
Pye, Dr. Orrea F.
Quaile, Mrs. Emerson B.
Rabenau, Herman
Rabinowitz, Dr. Alex
Radlhammer, Michael M.
Ragaini, Dr. Vincent E.
Rainbeau, Arthur
Rand, Miss Lucinda H.

*Deceased

Randall, Mrs. D. J.
Ranger, Stanley
Raphael, Burton
Raphael, Master Stephen
Raymond, Miss Catharine
Read, Duncan H.
Reboul, Mrs. J. B.
Redmond, Miss Joan
Redmond, Roland L.
Reed, Carl S.
Reid, Mrs. Fergus, Jr.
Reid, Mrs. William H.
Reilly, Dr. Edward T.
Reilly, John A.
Reisch, Dr. Milton
Reisweber, Mrs. G. B.
Renshaw, Mrs. Paul
Resnick, Mrs. Samuel
Resor, Stanley
Resor, Stanley R.
Resor, Mrs. Stanley R.
Reynal, Eugene
Reynolds, Master Bobby
Reynolds, D. S.
Rhinelander, Mrs. Philip
Rhinelander, Philip, 2nd
Richard, L. A.
Richards, Mrs. Edward L.
Richards, Mrs. Enders
Richards, Miss Ruth
Richman, Miss Ann Regina
Richardson, Arthur B.
Richter, Joseph
Richter, Dr. Peter
Rick, Miss Karen
Rieser, Dr. Julian
Rigney, Miss Janet
Rigney, Miss Rosemary
Riley, Dr. Henry Alsop
Rindlaub, Mrs. W. W.
Ripley, Paul M.
Ritter, Dr. J . S.
Rives, F. Bayard
Robbins, Dr. Robert M.
Roberts, Fred E.
Robinson, Miss Pauline L.
Robinson, William M., Jr.
Rochow, Donald S.
Rockefeller, Mrs. David
Rockwell, Dr. Elizabeth
Rockwood, William O.
Rodd, Thomas, 3rd
Rodman, Mrs. Hilda C.
Roehl, Mrs. Winslow J.
Roelofs, Richard, Jr.
Rogers, Mrs. Edward A.
Rogers, Mrs. Francis
Rogers, Hubert E.
Rogers, Russell C.
Rogerson, Mrs. Stella M.
Rohmer, Dr. Edward F.
Roosevelt, George E.
Ropes, Chapman
Rorimer, James J.
Rosato, Rocco
Rose, Miss Mary
Rosebury, Master Don Hall
Rosenberg, Charles
Rosenberg, Edwin A.
Rosenberg, Mrs. Edwin
Rosenberg, Dr. Frederick
Rosenberg, Dr. Morris
Rosenberry, Mrs. Samuel L.
Rosenblatt, Dr. Philip
Rosenfeld, Saul M.
Rosenthal, Paul
Ross, Edmund T.
Ross, Kip
Rossback, Max J. H.
Roth, Mrs. Andrew Winton
Roth, Mrs. Philip
Rothblatt, Miss Henrietta F.
Rothchild, Miss Marie-Helene
Rothkopf, Dr. Ernest Z.
Rothnagel, Harvey
Rothschild, Mrs. Walter N.
Rothstein, Miss Jacqueline Nancy
Rougon, Mrs. Louis J.
Rounsevel, Mrs. Ashton
Rouse, Harold A.
Rowell, Mrs. Frank B.
Ruedin, Pierre
Ruffolo, Mario A.
Ruhe, Louis
Ruhm, Mrs. Herman D., Jr.
Rumsey, Dr. William L.
Russell, Miss April
Russell, Dr. Henry
Russell, Miss Joan E.
Russell, John David
Ruth, Rev. Mother C. H. S.
Rutherfurd, Lewis
Rutherfurd, Winthrop, Jr.
Ryan, Mrs. John Barry
Ryder, John H.
Sachs, Dr. Bernard A.
Sachs, Teviah
Sackett, Charles B.
Sada, Diego G.
Saenger, Mrs. R. Alfred
Sagan, Miss Miriam Anna
St. John, T. Raymond
Salmon, Mrs. Walter J.
Salomon, Morton F.
Sammis, Donald Stuart
Samuel, Ralph E.
Sanderson, John
Sandor, Paul
Sanger, Mrs. Elliott M.
Sarewitz, Dr. Albert B.
Satozky, Dr. Jacob
Satterlee, Hugh
Sauerbrey, William A.
Sauter, Fred
Savage, Mrs. T. F.
Sawin, Moulton
Sayers, Mrs. Henry S.
Scanlon, Jack, Jr.
Schaefer, Rudolph J.
Schauman, Arnold J.
Schecter, Dr. Samuel
Schein, Mrs. Max
Scheinman, Mrs. Victor
Schenck, Charles L.
Scherrer, Miss Clara A.
Schetty, Frank R.
Schiemann, Herbert F.
Schiffmann, Leon
Schilio, Mrs. Lewis
Schiller, Bernard
Schlesinger, Ferdinand G.
Schley, Mrs. Kenneth B.
Schmidhauser, Harold B.
Schmones, B.
Schneider, Earl
Schneider, Dr. Harry
Schneiderman, Dr. Julius
Schnell, Mrs. Erika O.
Scholle, Hardinge
Scholnick, Abe.
Schonbrunn, S. A.
Schonholz, Dr. David H.
Schortman, Dr. Edward F.
Schroder, George H.
Schubert, Mrs. Quentin Melling
Schultz, Harry O.
Schultz, Dr. Louis A.
Schulz, Miss Katie
Schwahn, Werner

Schwartz, Mrs. Edward R.
Schwartz, George I.
Schwarz, Frederick A. O.
Scofield, Robert R.
Scott, Henry C.
Scott, Dr. John J.
Scoville, Miss Mary A.
Seagle, Miss Louis Peekham
Searl, Fred Herb
*Sears, Mrs. Philip S.
Seelig, Mrs. Alexander
Segal, Jules
Seibert, Robert F.
Seitz, Mrs. Richard
Selby, John C.
Seligman, Eustace
Seretan, Dr. Edward L.
Serling, Dr. Maurice E.
Seronde, Dr. Joseph, Jr.
Shanahan, T. J.
Shapiro, Marc R.
Shapiro, Dr. Raymond
Sharp, Mrs. L. I.
Shattuck, Mrs. John Ridge
Shaw, Dr. Edward J.
Shelton, Allen W.
Shepard, Dr. Frank P., Jr.
Shepherd, George E.
Sheps, Dr. Jack
Sherer, Dunham B.
Sherman, Mrs. Betty
Sherman, Mrs. Louise
Shiel, Mrs. Margaret O'N.
Shiffman, Mrs. Harry
Shippee, Lester E.
Shrewsbury, Miss Ethel M.
Siebern, Henry W.
Siegel, Charles D.
Siegel, Dr. Henry
Silberman, Morton S.
Silow, Herbert
Silver, Benjamin
Silverman, Dr. William A.
Simmon, Rudolph
Simmonds, Mrs. L. M.
Simon, Robert E., Jr.
Singer, Herbert M.
Sinnigen, Mrs. Walter C.
Sleik, Henry
Sloan, Nathan
Sloane, John
Slotter, Mrs. Charles F.
Smadbeck, Dr. Warren
Smith, Ellison Ward
Smith, Mrs. Franklin G.
Smith, Mrs. Harold DeWitt
Smith, Mrs. H. J.
Smith, Howard Caswell
Smith, Lee Thompson
Smith, Maxim
Smolka, Mrs. Norman
Smolka, Mrs. Sidney
Smyth, Miss Barbara Sally
Smyth, Herbert C.
Snider, Miss Nancy Constance
Snow, Richard B.
Snowden, Miss Sandra
Snyder, Peter V., Jr.
Snyder, Robert H., Jr.
Sock, Nate
Socolof, Ross B.
Soderberg, Gustave J., Jr.
Solkow, Saul
Solomon, Mrs. Abraham
Soria, Mrs. Dario
Spear, Arthur P., Jr.
Speiden, Mrs. Hammond
Speyers, Julian R.
Spilman, Mrs. Raymond
Spurr, Joseph James, 2nd
Squires, George R.
Stanley, Alfred T.
Stanley, Samuel F.
Stanwick, Charles A.
Starkey, Earle J.
Starzel, Mrs. F. J.
Statham, Noel
Stauffer, Dr. Tom G.
Steever, Edgar Z., 4th
Steffanson, Hokan B.
Stein, Mrs. Ernest
Steinhardt, Samuel C.
Steinhauer, Mrs. Sidney
Steinway, Henry Z.
Stenger, Dr. Albert H.
Stern, Charles M., Jr.
Stern, Edward N.
Stern, John Philip
Stetten, Mrs. DeWitt
Stevens, Mrs. Basil M.
Stevens, Mrs. Gloria
Stevens, John P., Jr.
Stevens, Leighton H.
Stevens, William D.
Stewart, Miss Josephine
Stewart, Percy M.
Stewart, William A. W.
Stiger, Miss Frances A.
Stillman, C. D.
Stokowski, Master Christi
Stokowski, Master Stani
Stoll, Charles H.
Stone, David B.
Stone, Robert G., Jr.
Storck, John
Storer, John H.
Stout, Gardner D.
Stowe, Mrs. Lyman Beecher
Straatsma, Mrs. Clarence R.
Straka, Jerome A.
Straus, Mrs. Nathan
Strawbridge, Mrs. R. E.
Strax, Dr. Philip
Streck, Dr. Charles B.
Streeter, Daniel W.
Streeter, Edward
Stringfellow, Miss Ethel Grey
Stritter, Miss E. Eleanor
Strong, Benjamin
Strong, Mrs. Charles H.
Stroock, Daniel W.
Strubing, Mrs. William
Stuart, Mrs. David
Stuart, Lyall L.
Stumpp, Mrs. Edwin A.
Sturman, Mrs. Paula
Sully, Wilberforce, Jr.
Sulzberger, Dr. Carl F.
Sumers, George W.
Sumner, Miss Estelle
Sunderland, Edwin S. S.
Supancich, Joseph F.
Sussman, Dr. Robert A.
Swan, Joseph R.
Swanson, Ernest
Swanson, Dr. Fritz J.
Swenson, Mrs. R. B.
Sydney, Manuel G.
Taber, Mrs. John S.
Taddiken, Miss Melita
Tansill, J. Duncan
Tarshis, M. A.
Taylor, Dr. Gilbert H.
Taylor, Dr. Gurney
Taylor, John W.
Taylor, Mrs. William R. K.
Taylor, Willis H., Jr.
Ternstrom, Thorwald
Thacher, Thomas
Thane, George
Thees, John D.
Thiem, Mrs. J. R.

*Deceased

Thoma, Mrs. Richard W.
Thomas, Mrs. George P.
Thomas, H. Gregory
Thomas, Harvey M.
Thomas, Mrs. Howard L.
Thomas, Mrs. Landon
Thomas, Norman M.
Thompson, Calvin A.
Thompson, D. G. Brinton
Thompson, Miss Gale
Thompson, Michael Gordon
Thompson, Mrs. Milton
Thorne, Mrs. John Norrish
Thursby, Sherman
Ticknor, Mrs. W. D.
Tinker, Mrs. Edward R.
Tipper, Frederic W.
Titley, Dr. Mildred S.
Tobachnik, Mrs. Rita
Tofano, Dr. Vincent E.
Towbis, Mrs. Shirley
Townsend, Mrs. Frank P.
Townsend, Mrs. Franklin, Sr.
Traphagen, Hugh M.
Traphagen, Mrs. J. C.
Trask, Mrs. Frederick K.
Trattler, Charles S.
Treat, Miss Dorothy A.
Trumbull, Walter
Tuchman, Miss Lucy
Tuck, Edward H.
Turnbull, Arthur
Turner, John B.
Turner, John R.
Tweed, Harrison
Uhrhane, Mrs. Clarence
Untermyer, Mrs. Elise S.
Vaillant, George E.
Valentine, Miss Marguerite E.
Valentine, Mrs. S. Binford
Van Alstyne, David, Jr.
Van Alstyne, Mrs. Grace A.
Vance, Mrs. Cyrus R.
Vandivert, William W.
Van Dusen, William H.
Van Gorder, George
Van Sinderen, Adrian
Vash, Dr. George
Vasile, Dr. John J.
Veit, Mrs. Robert T.
Verney, Mrs. Kathrin Grant
Vernon, Weston, Jr.
Villa, A. P.
Viosca, Harry
Vishner, Mrs. J.
Vogeley, Mrs. W. Roebling
Volk, Kurt H.
°Von Bergen, William H.
Vorhaus, Dr. Louis J., 2nd
Vranek, Robert
Waddell, K. C.
Wadsworth, Dyer
Walker, Miss Elizabeth
Walker, Jack
Walker, Dr. John L.
Walker, Joseph
Walker, J. Philip
Walker, Mrs. Samuel P.
Walker, Samuel Sloan
Wall, Mrs. E.
Wallace, Charles J.
Wallin, Miss Grace E.
Wallin, Miss Mary
Walsh, James W., Jr.
Walsh, Thomas J.
Walter, Miss M. Wendy
Walther, Francis
Walton, Harold L.
Wanek, Mrs. Ann N.
Wappler, Reinhold D.
Warburg, David
Warburg, Gerald F.
Ward, Mrs. Kenneth
Waring, Lawrence
Warner, Ira F.
Warnshuis, Mrs. A. Livingston
Warren, John D.
Wasey, Miss Jane
Wasserman, Sidney R.
Waterbury, Miss Florance
Waterman, Mrs. Frederick W., 3rd
Waterman, Philip M.
Watson, Bruce
Watts, Edward E., Jr.
Wauchope, Capt. George M.
Way, Miss Ruth
Wayne, Harold L.
°Webb, Vanderbilt
Weber, Dr. Bernard
Weber, Julius
Weekes, Hobart G.
Weems, Mrs. F. C.
Weigert, Hugo
Weil, Walter L.
Weilbacher, Miss Estelle
Weiler, Mrs. Merrill G.
Weinberg, Mrs. Charles
Weinberg, Dr. I.
Weinberg, Miss Ruth F.
Weiner, Dr. Melvyn L.
Weinman, Major A. N.
Weinstock, Mrs. Gerard
Weisenseel, Dr. Robert J.
Weisman, Dr. Abner I.
Weismann, Harold A.
Welch, Francis C.
Weld, Mrs. Philip B.
West, John P., Jr.
Wheelwright, Mrs. Mary C.
White, Mrs. Alexander M., Jr.
Whitehouse, Sheldon
Whitman, William, Jr.
Whitney, Edward A., Jr.
Whitney, Mrs. George
Whittaker, Mrs. Wallace
Whittlesey, Melzar M.
Wicke, Mrs. Carl
Wiener, Geoffrey R.
Wiese, Mrs. Caroline V. der W.
Wiesel, Dr. Benjamin
Wilbur, Miss Hazel L.
Wilde, Sydney W.
Wilder, George J.
Wilder, Neil MacDonald
Wiley, Mrs. Alexander
Wilhelm, Dr. Hazel S.
Wilkinson, Dr. Joseph B.
Wilkinson, Mrs. Lawrence
Willett, Mrs. Porter L.
Willey, Prof. Charles H.
Williams, Miss Augusta
Williams, Charles S.
Williams, Douglas
Williams, Mrs. Douglas
Williams, Eliot L.
Williams, M. Woodbridge
Williams, Timothy C.
Williams, Dr. Walter J.
Williams, Wheeler
Williamson, Edward
Wilner, Ellis H.
Wilson, Mrs. Ellery Lewis
Wilson, Horace H.
Wilson, R. Thornton
Wingard, Mrs. Dorothy
Winkhaus, Mrs. John T.
Winslow, Mrs. T. Scudder

°*Deceased*

Wise, Mrs. Robert
Wisner, William L., Jr.
Witte, Mrs. Henry D.
Wittlinger, Miss Bertha
Wocel, Frank E., Jr.
Wocel, Mrs. Janet M.
Wolbarst, Mrs. B. P. E.
Wolf, Stanley
Wolfe, Alan L.
Wolfe, Arthur
Wolff, Mrs. J. D.
Wood, Mrs. Willis D.
Woodruff, Miss Helen M.
Woodward, Mrs. William
Woolley, John E.
Worcester, Mrs. Wilfred J.
Wormser, Felix E.
Wormser, Mrs. Max E.
Wortis, Dr. S. Bernard
Wright, Guier Scott, Jr.
Wright, Harrison
Wulfing, F. W.
Wyeth, Marion Sims
Yancey, Rev. P. H., S. J.
Yepez, F. Fernandez
Young, George W.
Zabin, Dr. A.
Zahalsky, Dr. Arthur
Zahler, Mrs. Zella
Zahn, Philip
Zappler, Georg
Zausner, Hy
Zeehandelaar, F. J.
Zepp, Dr. C. P.
Ziegler, William, Jr.
Ziesing, Mrs. Hibben
Ziman, Mrs. Edmund
Ziminski, Stanley W.
Zinsser, William H.
Zischang, John Barry
Zola, Miss Bianca
Zurmuhlen, Frederick H.

SUMMARY OF MEMBERSHIP

December 31, 1957

Benefactors	9
Founders in Perpetuity	12
Founders	13
Associate Founders	4
Patrons	36
Life Members	378
Contributing Members	993
Annual Members	1,920
Honorary Members	5
Fellows	81
Research Associates	3
Corresponding Members	6
Total	3,460

BY-LAWS OF THE NEW YORK ZOOLOGICAL SOCIETY

ARTICLE I • Members

Section 1. The present members and such others as hereafter shall become members in accordance with these by-laws shall be the members of this Society.

Sec. 2. Annual, contributing and supporting members shall be elected by the Board or Executive Committee and, upon election, shall qualify for such membership by payment of dues for the first year commencing on the date of their election.

Sec. 3. Annual dues of annual members shall be $15, of contributing members $25, and of supporting members $100. Any person who shall fail to qualify within three months after his election shall be deemed to have declined his election.

Sec. 4. Any member who shall fail to pay his annual dues within three months after notice that they have become due and demand therefor, shall cease to be a member of the Society. He may, however, be reinstated by the Board or Executive Committee for good cause shown.

Sec. 5. Any person who shall have donated to the Society, in the aggregate, cash or the equivalent in value of any of the following amounts shall be eligible for election, by the Board or Executive Committee, to the class of membership appearing opposite such amount:

$1,000.00	Patron	$ 5,000.00	Founder
$2,500.00	Associate Founder	$10,000.00	Founder in Perpetuity
		$25,000.00	Benefactor

Any person who shall have donated to the Society $500 in one sum shall be eligible for election to Life Membership. An annual member, contributing member or supporting member who has paid dues for consecutive years amounting in the aggregate to $200 or more, may thereafter, at any time, upon payment of $300 or more in one sum, be elected a Life Member. Upon the death of a trustee, his widow shall be eligible for election, by the Board or Executive Committee, to Life Membership.

Sec. 6. The Board or Executive Committee may elect to membership in the following classes persons who, in their judgment, have achieved the qualifications hereinafter specified:

Fellows:—Persons of marked scientific achievement.
Honorary Members:—Persons who have rendered distinguished services in the science of zoology or natural history.
Corresponding Members:—Persons who have rendered marked services to the Society through correspondence.

Sec. 7. All but annual, contributing and supporting members shall be exempt from payment of annual dues.

Sec. 8. Benefactors and Founders in Perpetuity shall have the power to designate their respective successors, who shall thereupon be entitled to all the rights and privileges of their predecessors, including the right in turn to designate their successors. Such designation shall be in writing indorsed or attached to the certificate of membership or by last will and testament.

ARTICLE II • Privileges of Members

Section 1. Each annual, contributing and supporting member shall be entitled to a member's ticket, ten tickets of admission to the Zoological Park and Aquarium

on pay days, a copy of the annual report, a copy of the official periodical publication of the Society, and shall be entitled also to the privileges of the Administration Building at the Zoological Park.

SEC. 2. Life Members shall be entitled to all the privileges of annual members and also to ten additional tickets of admission to the Zoological Park and Aquarium on pay days.

SEC. 3. Benefactors, Founders in Perpetuity, Founders, Associate Founders and Patrons shall be entitled to all the privileges of Life Members and also to receive the Society's scientific publication "Zoologica."

SEC. 4. A member's ticket, issued annually, shall admit the member and his immediate family to the Zoological Park and Aquarium on pay days and to lectures and special exhibitions. It may be used by the member's immediate family.

SEC. 5. Each member, other than a member elected pursuant to Article I, Section 6, shall be entitled to one vote at each meeting of the Society.

SEC. 6. Any member who shall fail to comply with the provisions of these by-laws may be suspended from the privileges of membership or dropped from the rolls of the Society, by a majority vote of those present at a duly constituted meeting of the Board or Executive Committee.

ARTICLE III • MEETINGS OF THE SOCIETY

SECTION 1. The Annual Meeting of the Society shall be held on the third Tuesday in April in each year, or on such day thereafter and at such time and place as may be designated by the Board or Executive Committee.

SEC. 2. Special Meetings of the Society may be called upon order of the President or Chairman of the Executive Committee or on the written request of ten Trustees delivered to the Secretary.

SEC. 3. Notice of each annual and special meeting of the Society, stating the time, place and purpose thereof, shall be mailed, not less than ten nor more than forty days before such meeting, to each member at his address last recorded with the Secretary.

SEC. 4. At all meetings of the Society twenty members shall constitute a quorum.

ARTICLE IV • BOARD OF TRUSTEES

SECTION 1. The property, affairs and business of the Society shall be managed and controlled by a Board of Trustees consisting of thirty-six members divided into three equal classes, together with the Mayor and the Commissioner of Parks of the City of New York who shall be members *ex officio* of the Board. Each class of elected trustees shall hold office for three years and until its successors are elected. The term of office of one class shall expire each year and its successor shall be elected at the annual meeting of the Society.

SEC. 2. No person shall be eligible for election to the Board unless he shall be either a Benefactor, Founder in Perpetuity, Founder, Associate Founder, Patron or Life Member and, excepting to fill vacancies, unless his name shall have been posted as a candidate by the Nominating Committee or by not less than ten members in writing in a conspicuous place in the office of the Society not less than ten days before the annual meeting.

SEC. 3. Vacancies in the Board may be filled for the unexpired term by the Board or Executive Committee at any regular or special meeting, by ballot, by a majority vote of the members present; but no person shall be eligible for election to fill a vacancy unless he shall have been nominated at a meeting of the Board or Executive Committee held not less than four weeks prior thereto.

SEC. 4. The Board shall hold an annual meeting in December in each year, on a date and at a time and place designated by the Board or Executive Com-

mittee. Other meetings of the Board may be called upon order of the President or Chairman of the Executive Committee or at the written request of five Trustees delivered to the Secretary. Twelve Trustees shall constitute a quorum.

SEC. 5. Notice of each meeting of the Board shall be mailed to each Trustee at least seven days before the annual meeting and at least three days before any other meeting.

SEC. 6. A Trustee who shall fail to attend three consecutive meetings of the Board, without being excused by the Board, shall be deemed to have resigned as a Trustee.

SEC. 7. The Board at its annual meeting in each year shall appoint three standing committees — an Executive Committee, a Finance Committee and an Auditing Committee — each of which shall serve for one year, or until its successors are appointed. The Board or Executive Committee may appoint such other Committees and delegate to them such powers as they may deem advisable or necessary. The President shall designate the Chairman of each committee. Any vacancy in any committee including the Executive Committee, however occurring, shall be filled by the Board or Executive Committee. Except as to the Executive Committee, a majority of a committee shall constitute a quorum for the transaction of business, but all action shall be decided by a majority vote of the members of the committee.

ARTICLE V • OFFICERS

SECTION 1. The Board of Trustees at its Annual Meeting in each year shall elect a President, a First Vice President, a Second Vice President, a Treasurer and a Secretary from among the Trustees. The said officers shall hold office respectively for the ensuing year and until their successors are elected. Any vacancy for an unexpired term may be filled by the Board or Executive Committee.

SEC. 2. The President shall preside at all meetings of the Society and of the Board, exercise general supervision of the affairs of the Society, from time to time call attention of the Board to such subjects as in his opinion require consideration. Unless otherwise ordered by the Board or Executive Committee, he shall execute all contracts and instruments on behalf of the Society, and shall exercise the usual functions pertaining to his office. He shall be a member *ex officio* of all standing committees.

SEC. 3. The Vice Presidents, in order of seniority, in case of death, absence, resignation or disability of the President shall perform his duties and exercise his powers.

SEC. 4. The Treasurer shall supervise the collection, receipt and custody of the funds and securities of the Society subject to the order of the Board or Executive Committee and the deposit of all funds of the Society with banks or trust companies approved by the Board or Executive Committee. He shall see that all bills and appropriations are paid as ordered by the Board or Executive Committee and checks shall be signed by such officers and agents as the Board or Executive Committee shall determine. The Treasurer shall supervise the keeping of regular and correct accounts and shall submit reports to the Society at its Annual Meeting, to the Board at all Regular Meetings and to the Executive Committee at each meeting. He shall be a member *ex officio* of the Executive Committee and of the Finance Committee. The books of account of the Society shall be open at all times to the inspection of the Trustees and the Executive, Finance and Auditing Committees. The fiscal year of the Society shall be the calendar year.

SEC. 5. The Secretary, unless otherwise ordered by the Board or Executive Committee, shall cause notices to be issued of all meetings of the Society, the Board and the Executive Committee, attend all such meetings and keep the minutes thereof. He shall affix and attest the seal of the Society to all contracts and instruments executed on behalf of the Society unless otherwise ordered by the Board or Executive Committee. He shall conduct the correspondence of the

Society, have custody of the seal, archives and books, other than books of account, and perform the usual duties pertaining to his office and such other duties as the Board or Executive Committee may direct. He shall be a member *ex officio* of the Executive Committee.

SEC. 6. The Board or the Executive Committee may appoint annually, a General Director. He shall devote his entire time to the affairs of the Society. Subject to the Board, the Executive Committee and the President, he shall be the executive officer of the Society; shall exercise general supervision of all of the activities of the Society at the New York Zoological Park and the New York Aquarium. He shall perform all such other duties in connection with the business, scientific and literary administration of the Society as may be assigned to him by the Board, Executive Committee or the President. The General Director need not be a Trustee.

SEC. 7. The Board or the Executive Committee may appoint annually a Director of the New York Zoological Park. He shall devote his entire time to the affairs of the Society. Subject to the President, the Board and the Executive Committee, he shall be the executive officer of the Park; shall exercise general supervision of the Park and all activities there engaged in by the Society; shall be responsible generally for the performance by all employees at the Park of their respective duties and for the execution of all orders of the Board or Executive Committee and shall engage and discharge personnel, excepting officers, employed at the Park. He shall perform all such other duties in connection with the business, scientific and literary administration of the Society as may be assigned to him by the Board, the Executive Committee and the President. The Director need not be a Trustee.

SEC. 8. The Board or the Executive Committee may appoint, annually, a Director of the New York Aquarium. He shall devote his entire time to the affairs of the Society. Subject to the Board, the Executive Committee and the President and the General Director, he shall be the executive officer of the Aquarium; shall exercise general supervision of the Aquarium and all activities there engaged in by the Society; shall be responsible generally for the performance by all employees of the Aquarium of their respective duties and for the execution of all orders of the Board, Executive Committee or General Director, and shall engage and discharge Aquarium personnel, excepting officers, employed at the Aquarium; he shall perform all such other duties in connection with the business, scientific and literary administration of the Society as may be assigned to him by the Board, the Executive Committee, the President or General Director. The Director of the Aquarium need not be a Trustee.

SEC. 9. The Board or the Executive Committee may appoint annually a Comptroller. The Comptroller shall devote his entire time to the affairs of the Society except as otherwise ordered by the Board or the Executive Committee. He shall act as chief fiscal officer of the Society under the Treasurer; he shall have custody of and preserve all records and documents relating to the property of the Society, keep proper books of account, see that audits thereof are currently and regularly made, and in conjunction with other officers and officials, initiate and enforce measures and procedures whereby the business of the Society shall be conducted with the maximum efficiency and economy. He shall perform all such other duties in connection with the business, scientific and literary administration of the Society as may be assigned to him by the Board, the Executive Committee, the President and the Treasurer. The Comptroller need not be a Trustee.

SEC. 10. The Board or Executive Committee may appoint one or more Assistant Treasurers, Assistant Secretaries and such other officers or officials, including honorary officers, as may be deemed necessary, none of whom need be a Trustee, to serve at the pleasure of the Board or Executive Committee, and may define their respective duties. Honorary officers who are not trustees shall be entitled to attend meetings of the Board and give the Board the benefit of their advice but without voting power. A bank or trust company organized under the laws of the State of New York and having its principal place of business in New York City may be appointed Assistant Treasurer and banks or trust companies organized under

the laws of the United States or of the State of New York and having their principal place of business in New York City may be made custodians of the securities and investments of the Society upon such terms as may be specified and with such powers as may be delegated to them by the Board or Executive Committee.

ARTICLE VI • COMMITTEES

SECTION 1. *Executive Committee*—This Committee shall consist of eight Trustees, and the President, Treasurer and Secretary as members *ex officio*.

In the interim between meetings of the Board, the Executive Committee shall manage and control the property, business and affairs of the Society and exercise all the powers of the Board to the extent not delegated to other Committees or contrary to law. It shall report regularly to the Board, and send copies of its minutes and of reports made to it to each member of the Board.

Regular meetings of the Executive Committee shall be held on the third Tuesday in each month, unless otherwise ordered by the Chairman, at such time and place as shall be fixed by the Chairman. Special meetings may be called upon order of the Chairman or at the written request of three members of the Committee delivered to the Secretary. Four members including the Chairman shall constitute a quorum, but all action shall be decided by a majority vote of the members present.

The Executive Committee shall appoint each year a Nominating Committee which shall hold office for one year and until its successors are appointed.

The Executive Committee shall fix the salaries of the officers and employees of the Society unless otherwise directed by this Committee or the Board.

SEC. 2. *Finance Committee*—This Committee shall consist of not less than three Trustees and the President and Treasurer as members *ex officio*.

Regular meetings of the Finance Committee shall be held quarterly unless otherwise ordered by the Chairman, at such time and place as shall be fixed by the Chairman. Special meetings may be called upon order of the Chairman on not less than three days' written or 24 hours' verbal notice.

The Finance Committee shall have power to sell securities and other investments belonging to the Society and to reinvest proceeds of sale and invest any other funds of the Society available for investment, in such securities or investments as it may deem wise. It shall report quarterly to the Executive Committee all purchases and sales of securities and investments made by it. It may submit to the Board or Executive Committee its recommendations with regard to sales or purchases of securities or other investments.

Notwithstanding the power hereby conferred, the Board or Executive Committee may, at any time, direct the sale of any securities and investments held by the Society, or direct the reinvestment of any proceeds of sale or investment of other funds of the Society available for investment in such securities or investments as it may specify.

Directions to any custodian or depositary for the purchase or sale of securities or other investments or other action in connection therewith shall be given by the officers, members of the Finance Committee or such agents as the Board or Executive Committee may from time to time determine.

SEC. 3. *Auditing Committee*—This Committee shall consist of three members, other than members elected pursuant to Article I, Section 6, and the President and the Secretary as members *ex officio*.

The Auditing Committee shall cause the accounts and funds of the Society to be audited and certified annually, or as often as it deems advisable, by a certified public accountant of its selection and shall report to the Board on its examination of the report of the certified public accountant.

SEC. 4. *Nominating Committee*—This Committee shall be composed of three members other than Trustees and members elected pursuant to Article I,

Section 6. This Committee shall select twelve candidates, to succeed the outgoing class of Trustees, to be voted upon at the ensuing annual meeting. The names of such candidates shall be posted in a conspicuous place in the office of the Society at least ten days before the annual meeting.

ARTICLE VII • Amendments

Section 1. These By-Laws may be amended, either by change or repeal of any provision or the adoption of new provisions, at any meeting of the Board by majority vote of the Trustees present, provided such proposed amendment is set forth in full in the notice of such meeting.

